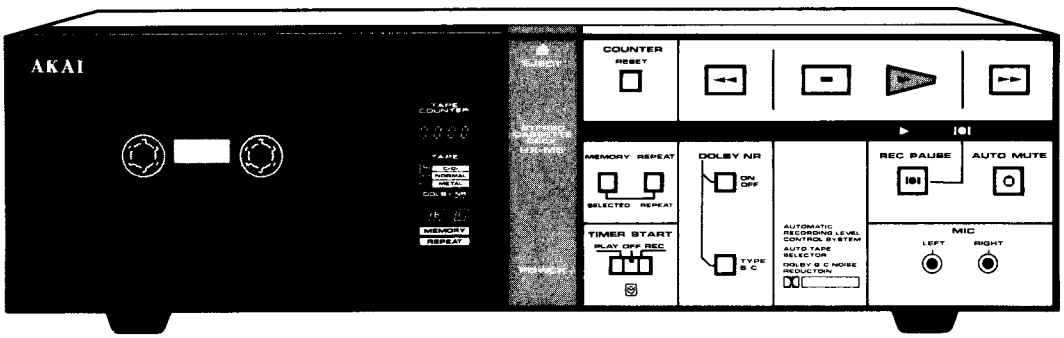
HX-M5

AKAI SERVICE MANUAL

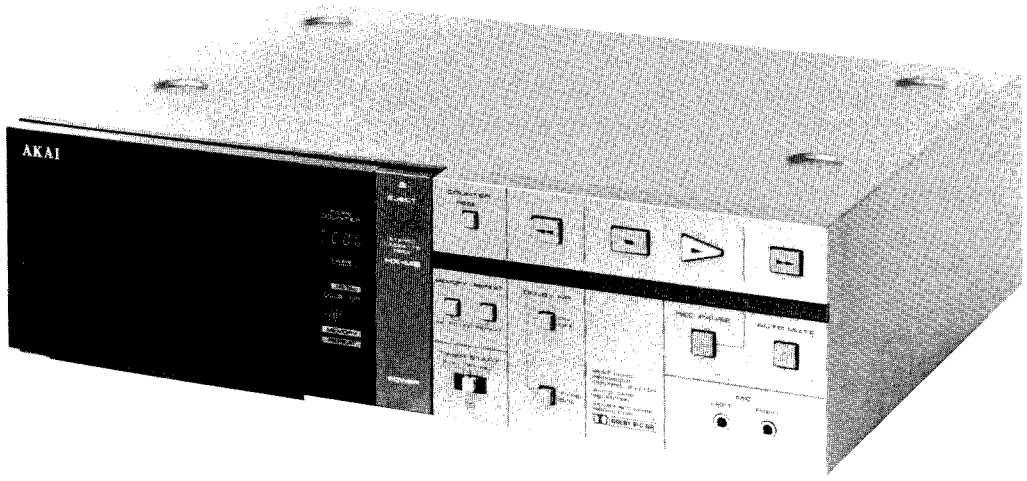


STEREO CASSETTE DECK

MODEL HX-M5

ABBREVIATIONS FOR SERVICE MANUAL
MODEL HX-M5

ABBREVIATION	EXPLANATION
ALC	Automatic Level Control
ASN	Anti Saturation Network
EQ	EQualizer
F	Free Point (Counter point when RWD/PLAY keys pressed at the same time)
F	Forward
FF	Fast Forward
MIC	MICrophone
OSC	OSCillator
PB	PlayBack
R	Reverse
REC	RECord
REW	REWind
RWD	ReWind
S	Start Point (Beginning of Tape)
SDN	Spectral De-skewing Network
SSN	Spectral Skewing Network
SYSCON	SYStem CONtrol
T.S.	Tape Selector
T.U.	Take Up (Reel)
VR	Variable Resistor
Z	Zero Point (of counter)



STEREO CASSTTE DECK

MODEL HX-M5

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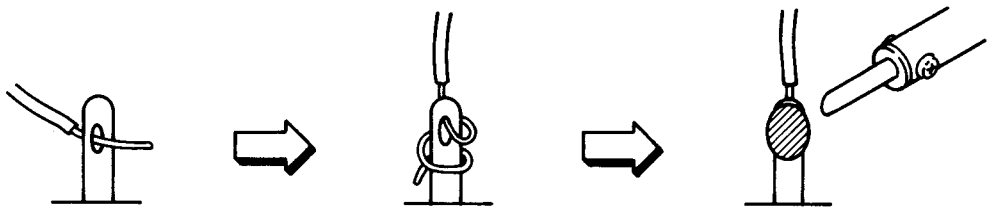
SAFETY INSTRUCTION

SAFETY CHECK AFTER SERVICING

Confirm the specified insulation resistance between power cord plug prongs and externally exposed parts of the set is greater than 10 Mohms, but for equipment with external antenna terminals (tuner, receiver, etc.) and is intended for [C] or [A], specified insulation resistance should be more than 2.2 Mohms (ground terminals, microphone jacks, headphone jacks. line-in-out jacks etc.)

PRECAUTIONS DURING SERVICING

1. Parts identified by the ⚠ symbol parts are critical for safety.
   Replace only with parts number specified.
2. In addition to safety, other parts and assemblies are specified for conformance with such regulations as those applying to spurious radiation. These must also be replaced only with specified replacements.
   Examples: RF converters, tuner units, antenna selector switches, RF cables, noise blocking capacitors, noise blocking filters, etc.
3. Use specified internal wiring. Note especially:
   1) Wires covered with PVC tubing
   2) Double insulated wires
   3) High voltage leads
4. Use specified insulating materials for hazardous live parts. Note especially:
   1) Insulation Tape
   2) PVC tubing
   3) Spacers (Insulating Barriers)
   4) Insulation sheets for transistors
   5) Plastic screws for fixing microswitch (especially in turntable)
5. When replacing AC primary side components (transformers, power cords, noise blocking capacitors, etc.), wrap ends of wires securely about the terminals before soldering.



6. Observe that wires do not contact heat producing parts (heatsinks, oxide metal film resistors, fusible resistors, etc.).
7. Check that replaced wires do not contact sharp edged or pointed parts.
8. Also check areas surrounding repaired locations.
9. Use care that foreign objects (screws, solder droplets, etc.) do not remain inside the set.

SECTION 1

SERVICE MANUAL

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I. SPECIFICATIONS

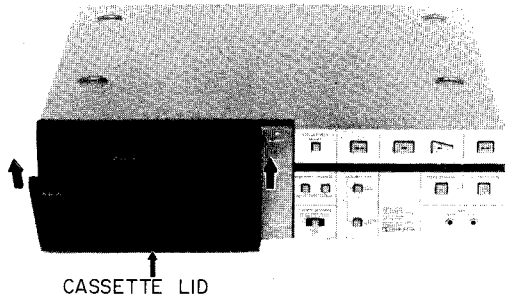
Track system	4 Track 2 channel Stereo system
Tape	Philips type cassette
Heads	High Density Head for REC/PB × 1 Erase Head × 1
Motor	Electronically speed controlled DC Motor for Capstan drive × 1
WOW & Flutter	Less than 0.05% WRMS, ±0.09% W. Peak (EIAJ) 0.09% (DIN)
Frequency Response	Normal: 30 to 15,000 Hz ± 3dB CrO_2 : 30 to 16,000 Hz ± 3 dB Metal : 30 to 17,000 Hz ± 3 dB
Signal-to-noise ratio	56 dB (Measured via tape with peak recording level, Metal tape) Dolby B ON: Improves up to 5dB at 1 kHz 10 dB above 5 kHz. Dolby C ON: Improves up to 15dB at 500Hz, 20dB from 1 kHz to 10 kHz.
Distortion	Less than 0.75% (Metal tape)
Input	MIC: 15mV (input impedance 5 k ohms) Required microphone impedance: 600 ohms Line: 410mV (–5.5dBm) input impedance 47 k ohms
Output	Line 410mV (less than 2.2 k ohms)
Power requirement	100V, 50/60Hz for Japan 120V, 60Hz for USA and Canada 220V, 50Hz for Europe except UK 240V, 50Hz for UK and Australia 110V/120V/220V/240V, 50/60Hz Switchable for other countries
Power Consumption	JPN 14W CSA, AAL 14W U/T 14W
Dimensions Weight	350 (W) × 98 (H) × 267 (D) mm (13.8 × 3.9 × 10.5 inches) 4 kg (8.8 lbs.)

* For improvement purposes, specifications and design are subject to change without notice.
* Noise reduction manufactured under license from Dolby Laboratories Licensing Corporation. "Dolby" and the double-D symbol are trade marks of Dolby Laboratories Licensing Corporation.

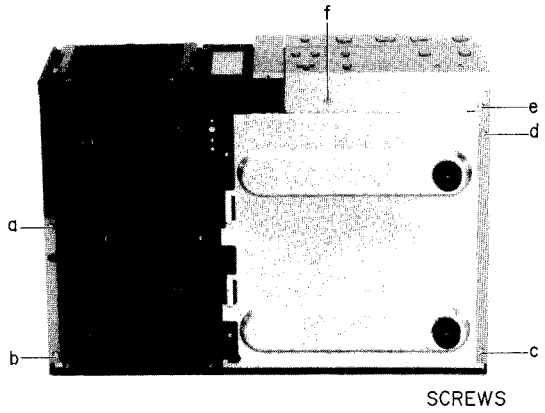
II. DISMANTLING OF UNIT

In case of trouble, etc. necessitating dismantling, please dismantle in the order shown in the photographs.
Reassemble in reverse order.

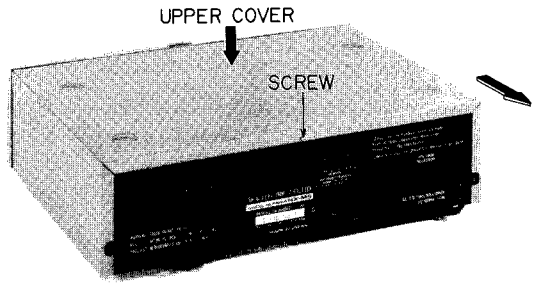
1



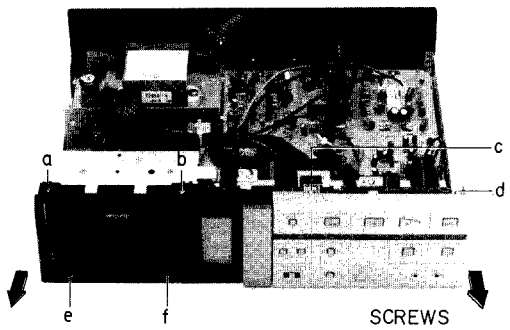
2



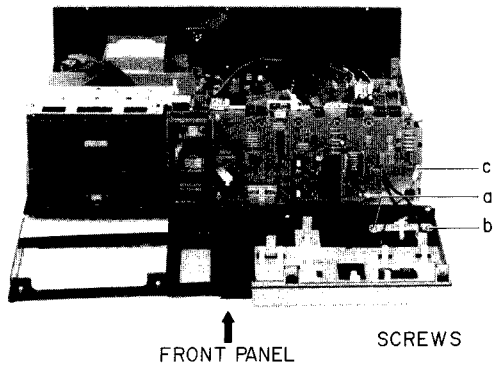
3



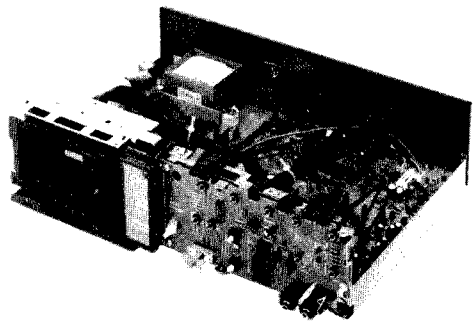
4



5



6



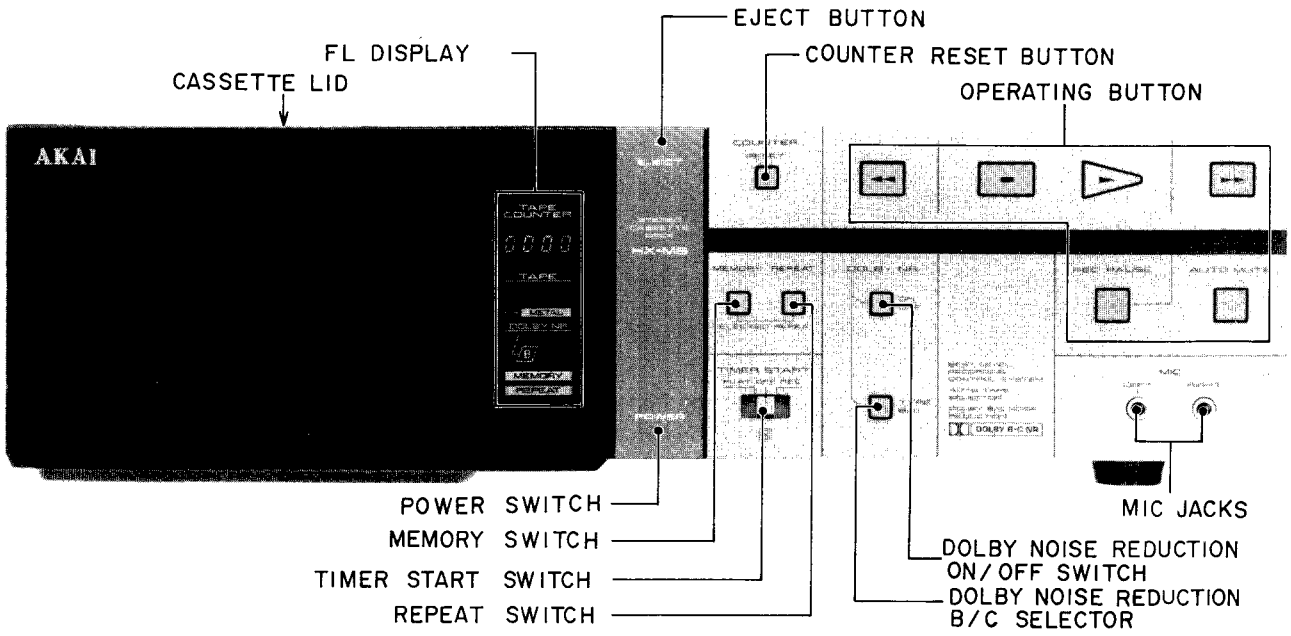


Fig. 3-1 Controls (Front Panel)

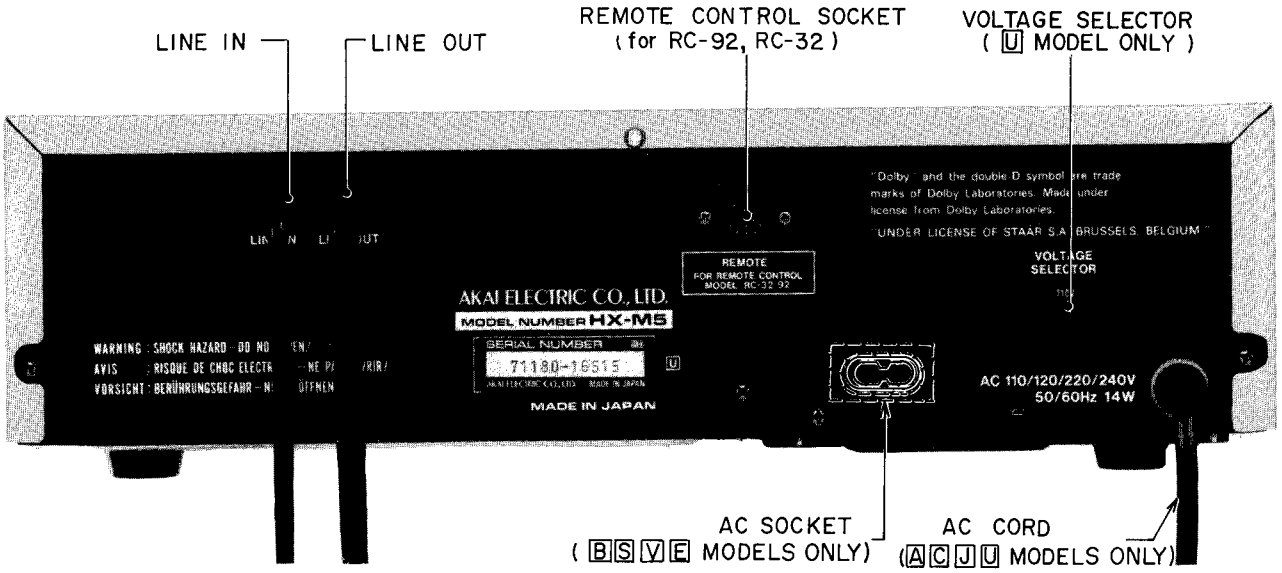

LINE IN
LINE OUT
REMOTE CONTROL SOCKET (for RC-92, RC-32)
VOLTAGE SELECTOR (U MODEL ONLY)
AKAI ELECTRIC CO., LTD.
MODEL NUMBER HX-M5
SERIAL NUMBER
MADE IN JAPAN
AC 110/120/220/240V 50/60Hz 14W
AC SOCKET (B S V E MODELS ONLY)
AC CORD (A C J U MODELS ONLY)

Fig. 3-2 Controls (Rear Panel)

IV. PRINCIPAL PARTS LOCATION

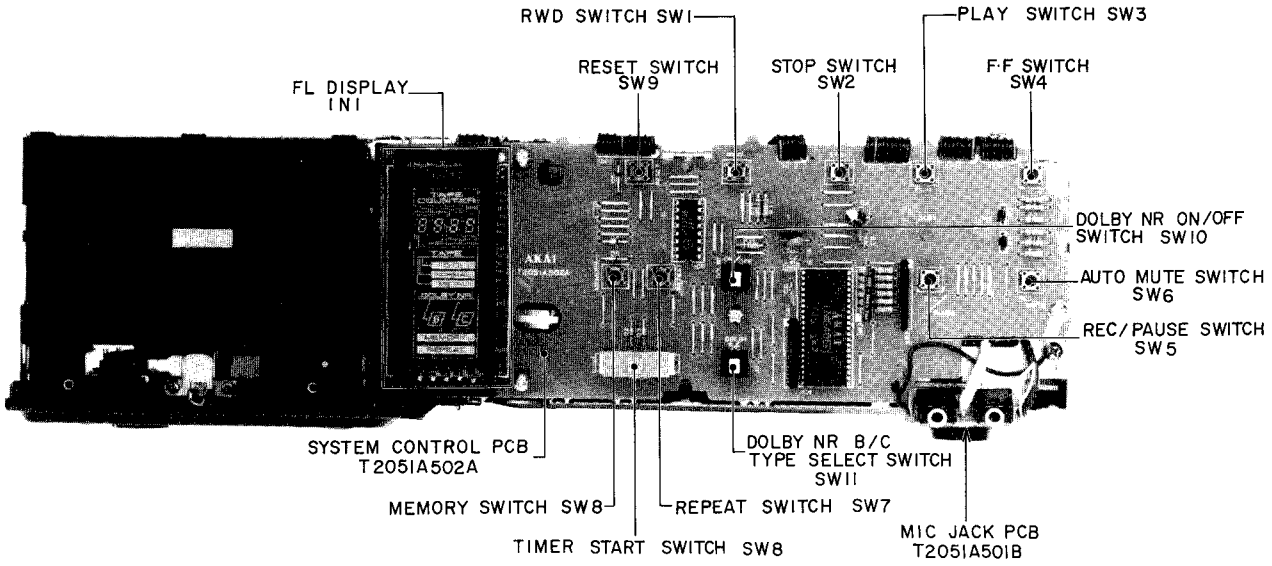


Fig. 4-1

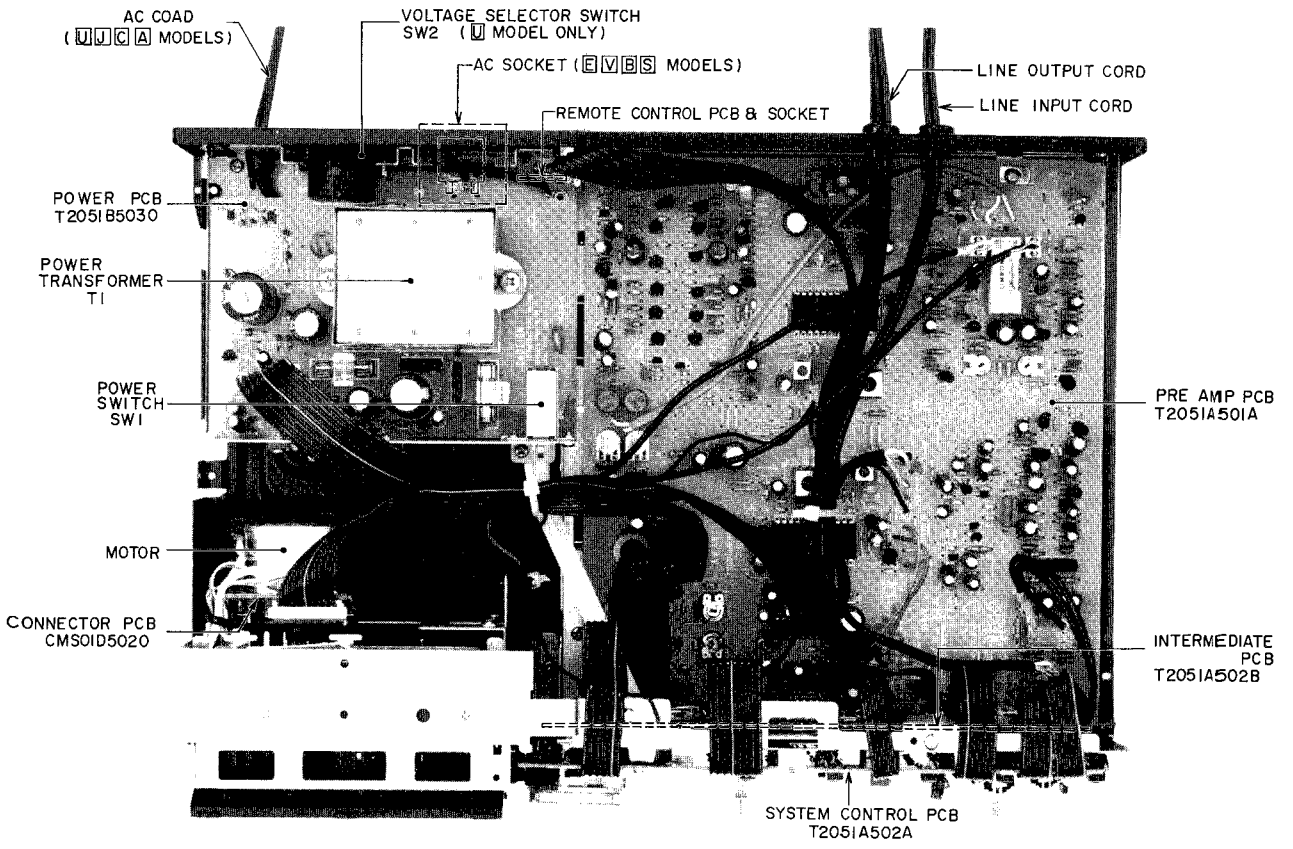

AC COAD (U J C A MODELS)
VOLTAGE SELECTOR SWITCH SW2 (U MODEL ONLY)
AC SOCKET (E V B S MODELS)
LINE OUTPUT CORD
LINE INPUT CORD
REMOTE CONTROL PCB & SOCKET
POWER PCB T2051B5030
POWER TRANSFORMER T1
POWER SWITCH SW1
PRE AMP PCB T2051A501A
MOTOR
CONNECTOR PCB CMS01D5020
INTERMEDIATE PCB T2051A502B
SYSTEM CONTROL PCB T2051A502A

Fig. 4-2

V. VOLTAGE CONVERSION

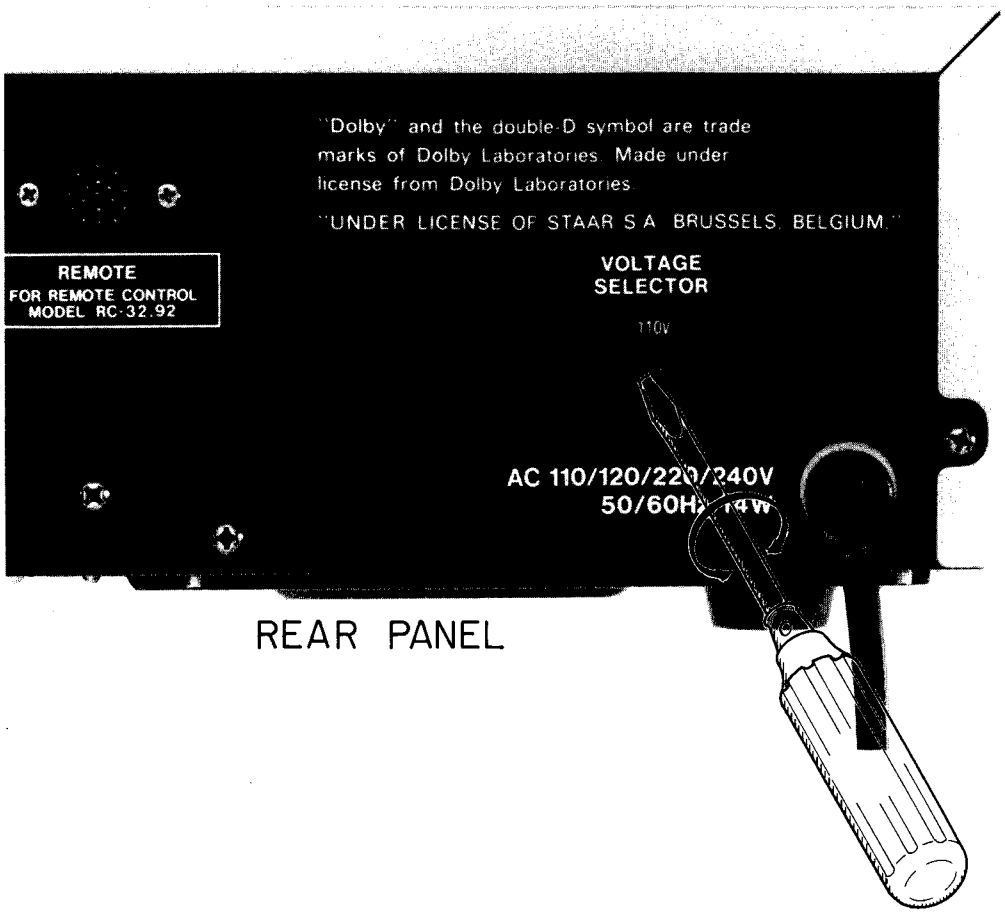


Fig. 5-1 Voltage Conversion

5-1. VOLTAGE CONVERSION

Models for Japan, Canada, USA, Europe, UK and Australia are not equipped with this facility. Each machine is preset at the factory according to destination, but some machines can be set to 110V, 120V, 220V or 240V as required.

If your machine's voltage can be converted:

5-1-1. Disconnect the power cord.

5-1-2. Turn the VOLTAGE SELECTOR located on the rear panel with a screwdriver until the correct voltage is indicated. (Refer to Fig. 5-1)

5-2. CYCLE CONVERSION

Cycle conversion is unnecessary since HX-M5 uses a DC motor.

VI. NEW FEATURES OF HX-M5

6-1. AUTO LEVEL CONTROL

HX-M5 has no recording level control because it is only supplied as a system component. The output signals from the turntable through the amplifier and the tuner are alternative sources for HX-M5 and these inputs of HX-M5 are set at an optimum level, but if for some reason, the signal level of the source should be higher, this Auto Level Control circuit is provided for such an eventuality to prevent distortion during recording. This is achieved by detecting line output signals larger than +4 dB and suppressing the associated rise in the output level of the MIC/LINE amplifier.

6-2. S-F MEMORY REPEAT AND Z-F MEMORY REPEAT

S..... Start Point (beginning of tape)
F..... Free Point (counter point when RWD and PLAY keys are pressed simultaneously).
Z..... Zero (0000) point of the counter

6-2-1. S → F MEMORY REPEAT

The function is to playback repeatedly from the tape beginning to the free point (when RWD and PLAY keys are pressed simultaneously). It can be used for repeating the first tune of the tape or one measurement.

6-2-2. Z → F MEMORY REPEAT

The function is to playback repeatedly from the zero (0000) point of the counter to the free point (when RWD and PLAY are pressed simultaneously). It can be used for repeating a tune on the way or a certain part of a tune.

6-2-3. MEMORY-REPEAT SWITCH AND AUTO SYSTEM

MEMORY SW	ON	OFF	ON	OFF
REPEAT SW	OFF	ON	ON	OFF
Key input	◁◁	◁◁	◁◁	◁◁
Operation	MEMORY STOP RWD → (0000) STOP	AUTO REPEAT RWD → (Tape Top)- → PLAY → (Tape End)	MEMORY-REPEAT RWD → (0000) PLAY → (Tape End)	AUTO STOP RWD → (Tape End) STOP
Key input	◁◁+▷	◁◁+▷	◁◁+▷	◁◁+▷
	MEMORY PLAY RWD → (0000)- → PLAY → (Tape End) STOP	S-F MEMORY PLAY RWD → (Tape Top)- → PLAY → (Free Point)	Z-F MEMORY PLAY RWD → (0000)- → PLAY → (Tape End)	AUTO PLAY RWD → (Tape Top) → PLAY → (Tape End) STOP
Key input	▷	▷	▷	▷
	AUTO STOP PLAY → (Tape End) STOP	AUTO REPEAT PLAY → (Tape End) → RWD → (Tape Top)	MEMORY-REPEAT PLAY → (Tape End)- → RWD → (0000)	AUTO STOP PLAY → (Tape End) STOP
Key input	○+▷	○+▷	○+▷	○+▷
	AUTO STOP REC → (Tape End) STOP	REC → AUTO REPEAT REC → (Tape End)- → RWD → (Tape Top)- → PLAY	REC → MEMORY REPEAT REC → (Tape End)- → RWD → (0000)- → PLAY	AUTO STOP REC → (Tape End) STOP

7-1. MOTOR AND BELT (REFER TO FIG. 7-1)

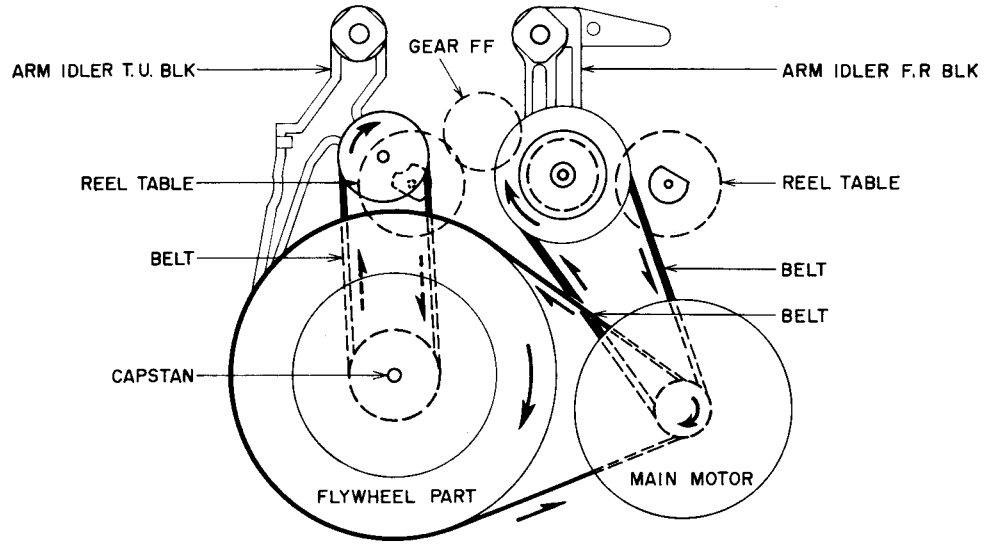


Fig. 7-1 Motor and Belt

When the power switch is turned ON to energize and rotate the main motor, the rotation is transferred through two driving belts to the flywheel and idler F.R. The flywheel rotation is transferred to Idler T.U. through a belt. The rotation of the flywheel and idlers operates the main rotation system of the cassette mechanical block.

7-2. REWIND OPERATION (REFER TO FIG. 7-2)

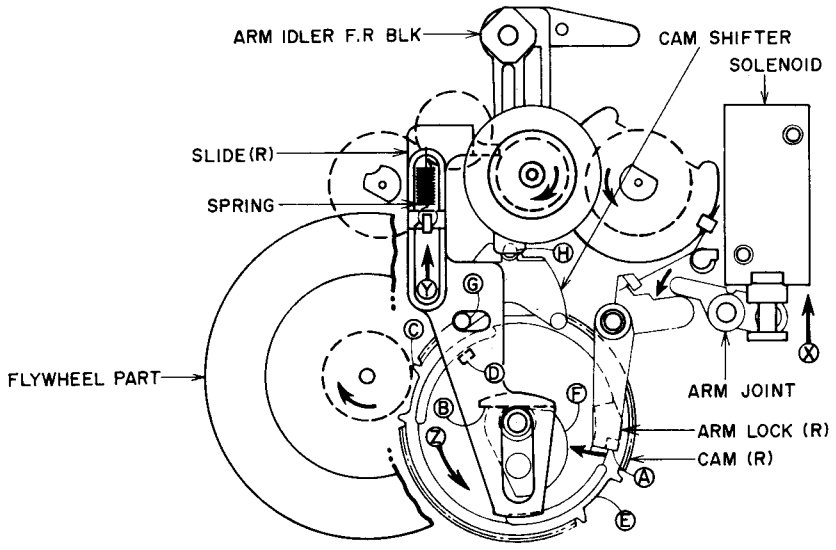


Fig. 7-2 Rewind Operation

When the REW button is pressed the solenoid core is pulled in the Ⓧ → mark direction. The operatin unlocks the Ⓐ part of the arm lock (R) through the arm joint. The unlocked cam (R) is given the rotating trigger in the direction of Ⓩ → mark by the Ⓑ part of the slide (R) which is pushed down in the direction of Ⓨ → mark by spring force. This engages the gear of Ⓒ part and the rotation of the flywheel gear is transferred to the cam (R). The rotation of this cam (R) is stopped by the stopper Ⓓ and then the Ⓔ part moves to the position of the flywheel gear and the gear is disengaged to stop the rotation of the cam (R).

In the rotation of the cam (R) from the engagement of Ⓒ round to section Ⓔ, the Ⓑ part is raised by the Ⓕ cam, and therefore, when the gear disengaged, the slide (R) is raised in the reverse Ⓨ → direction thus raising the Ⓖ pin of the cam shifter to swing the Ⓗ pin toward the right.

This swing is used to swing the arm of the idler F.R. to the right to engage the reel table gear thus transferring the REW rotation to the reel table.

7-3. FAST FORWARD OPERATION (REFER TO FIG. 7-3)

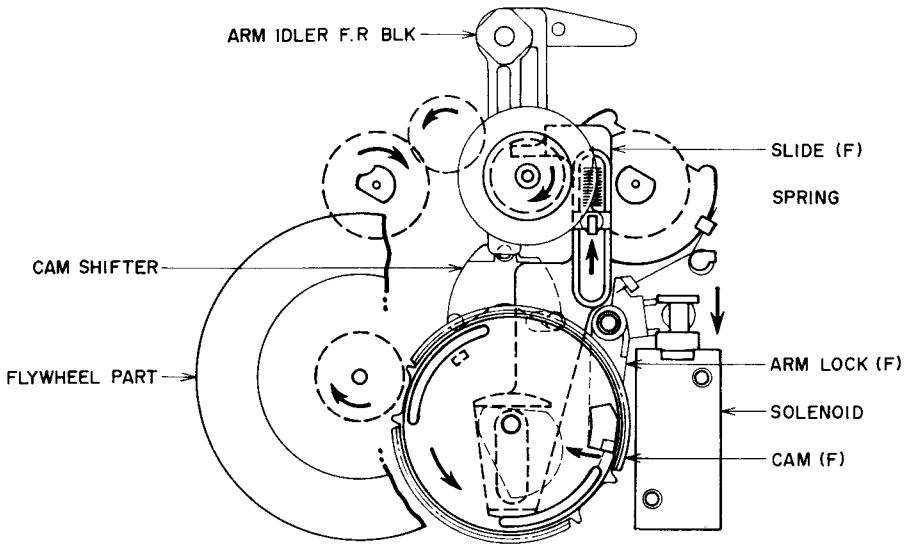


Fig. 7-3 Fast Forward Operation

The fast forward operation is basically almost the same as the rewind operation. The cam shifter is raised at the right side by the slide (F) to swing the arm idler F.R. to the left so that it engages the reel table gear, thus transferring the fast forward rotation.

The fast forward rotation is continued by means of the fast forward solenoid and is stopped when the solenoid is "OFF".

7-4. FORWARD (PLAY) OPERATION (REFER TO FIGS. 7-4, 7-5 and 7-6)

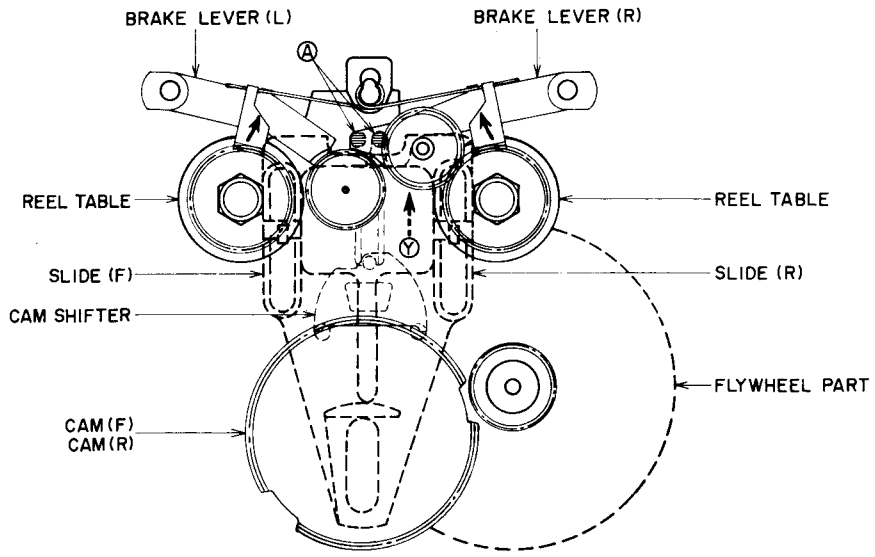


Fig. 7-4 Forward (PLAY) Operation

When the PLAY button is pressed, two solenoids are energized, both arm locks (F) and (R) are unlocked, both cams (F) and (R) rotate simultaneously and both slides (R) and (F) are forced to slide upwards in the direction of the Ⓨ → mark. Then the cam shifter also moves in parallel with this movement.

The pin Ⓐ is moved with the movement of the slide by means of the brake lever to remove the brake from the reel table.

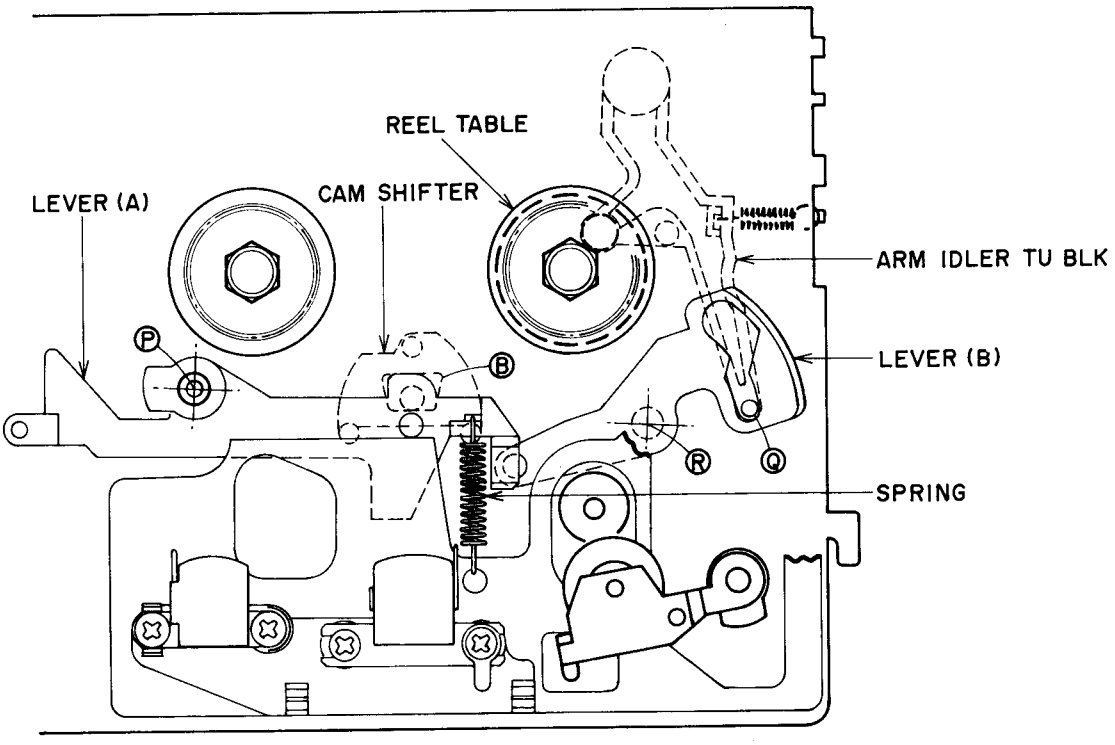


Fig. 7-5 STOP Mode

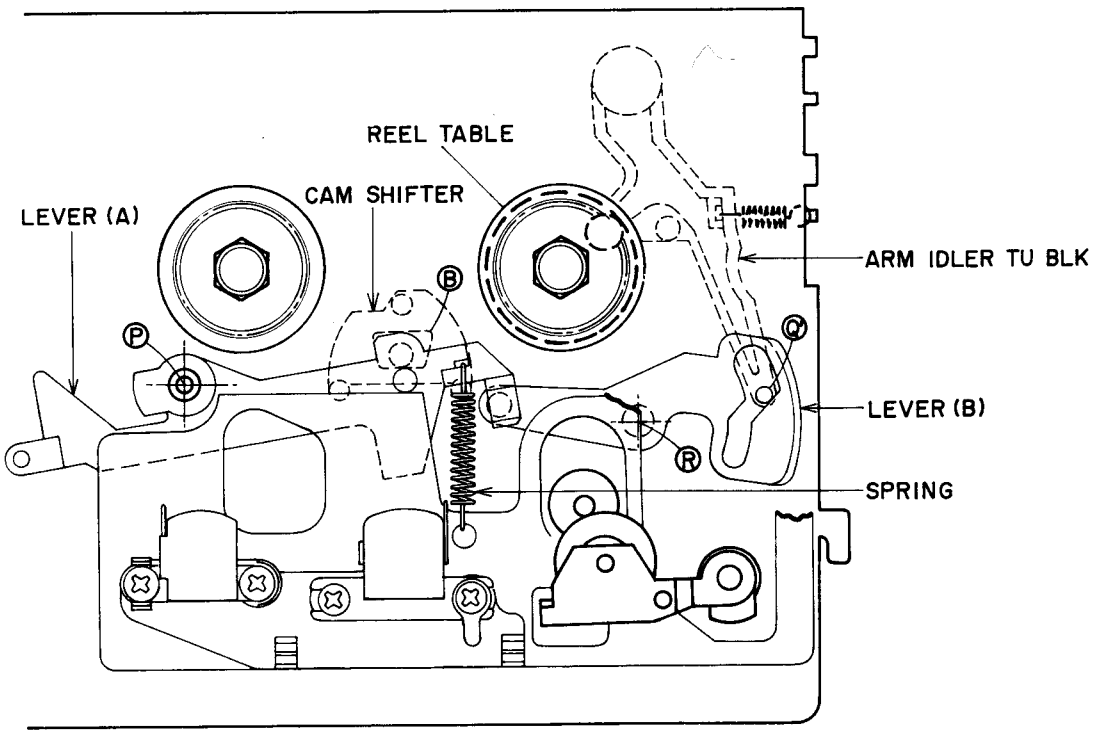


Fig. 7-6 PLAY Mode

A round pin of the lever (A) is inserted in the Ⓑ shaped hole of the cam shifter to achieve interlock, and the lever (B) is engaged in the slot of the lever (A) to achieve interlock.

When the cam shifter is forced to slide upwards in the PLAY mode, the lever (A) engaged with it moves upwards round the fulcrum Ⓟ as the fixed center, to raise the head chassis by means of the force provided by the spring. The lever (B) engaged with the lever (A) rotates the fulcrum Ⓡ as the fixed center to place the pin Ⓠ in the Ⓠ′ position and transfers the rotation by pressing the rubber pulley of the idler TU against the inside surface of the reel table.

(The rotation of the idler TU is transferred from the fly-wheel by means of the belt.)

When the head chassis slides upwards the pinch roller is pressed against the capstan by the torsion spring.

VIII. DESCRIPTION OF CIRCUIT OPERATION

8-1. BLOCK DIAGRAM

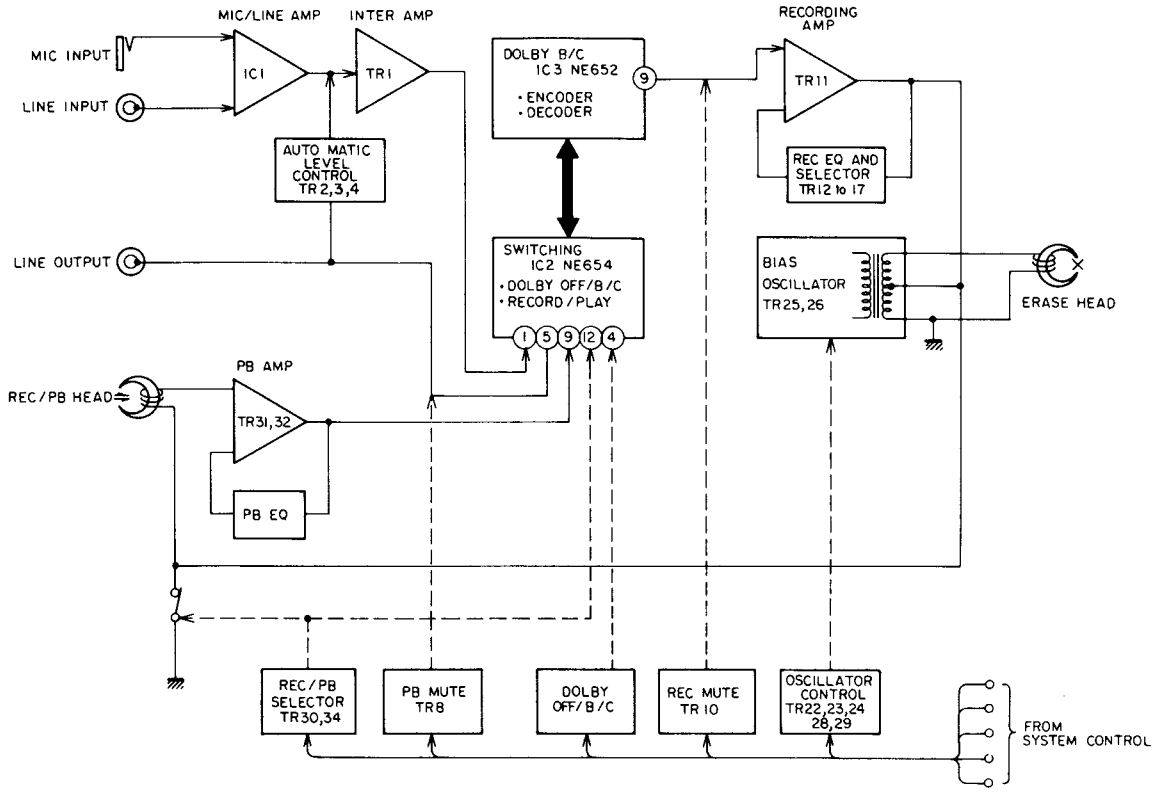


Fig. 8-1 Block Diagram of Amplifier Section

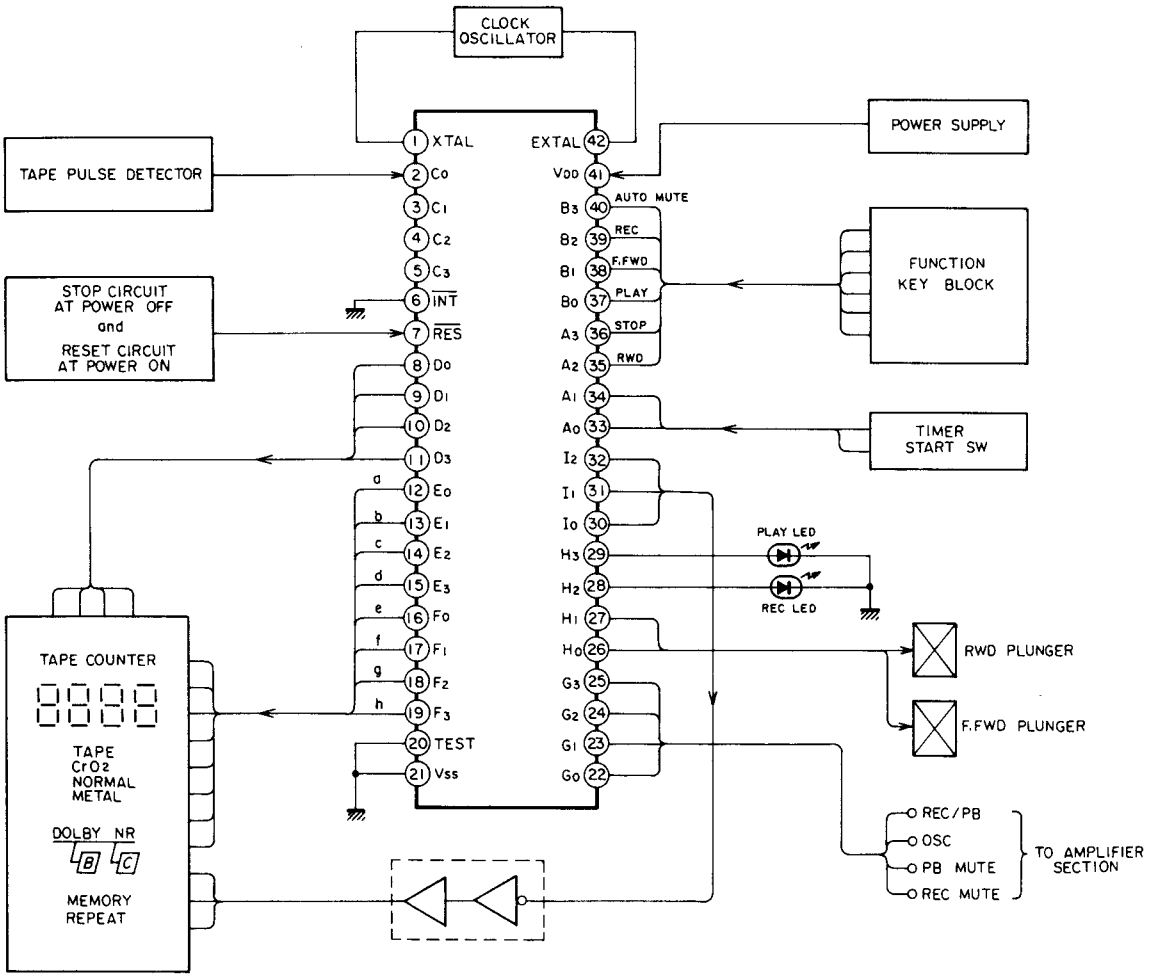


Fig. 8-2 Block Diagram of System Control Section

8-2. ACTIONS OF SYSTEM CONTROL IC LM 6504-145

8-2-1. MEANING OF IC (LM6504-145) TERMINALS

SYSCON MYCON (IC4.LM6405)

Pin No.	Symbol	Meaning
1	XTAL	Crystal oscillator input
2	C0	Tape Pulse Input
3	C1	×
4	C2	×
5	C3	×
6	$\overline{INT}$	Interrupting terminal: To "GND"
7	$\overline{RES}$	Reset terminal: Reset at "L", when power ON.
8	D0	} DIGIT DRIVE (4-digit)
9	D1	
10	D2	
11	D3	
12	E0	7 Segments LED DRIVE a } Light when synchronized with Dϕ – D3
13	E1	b
14	E2	c
15	E3	d
16	F0	e
17	F1	f
18	F2	g
19	F3	Strobe signal for operation indicator LED DRIVE
20	TEST	} To "GND"
21	Vss	
22	G0	REC MUTE terminal: REC MUTE at "H"
23	G1	PB MUTE terminal: REC MUTE at "H"
24	G2	BIAS OSC control terminal: Oscillator driven at "L"
25	G3	REC/PB switching terminal: PB at "H" and REC at "L"
26*	H0	PLUNGER (R)
27*	H1	PLUNGER (F)
28	H2	REC LED terminal: LED lights at "L"
29	H3	PB LED terminal: LED lights at "L"
30*	10	} TAPE SELECTOR switching terminal
31*	11	
32*	12	
33*	A0	MEMORY, TIMER REC, T.S.IN, METAL COUNTER RESET, REC DETECTION (A.R) } Input terminal
34*	A1	REPEAT, TIMER PLAY, T.S.IN CrO_2 Input terminal
35	A2	Key input RWD } Earthed when the operation key is pressed.
36	A3	STOP
37	B0	PLAY
38	B1	FF
39	B2	REC
40	B3	AUTO MUTE
41	V_{DD}	+5V
42	EXTAL	Crystal oscillator input

Fig. 8-3 Meaning of IC (LM6504-145) Terminals

8-2-2. ACTION OF FF AND RWD PLUNGERS

The FF and RWD plungers are controlled by the "HIGH" and "LOW" signals at Pin ㉖ and ㉗ of IC4 (LM6504-145), and the "ON" and "OFF" operation of the FF and RWD plungers activates the mechanical operation of each mode.

* The plunger is activated by the "LOW" control signal from IC4 (LM6504-145) pins ㉖ and ㉗ .

PLUNGER	CONTROL by IC4	OUTPUT SIGNALS			
RWD Plunger	Pin ㉖	High	Low	High	Low
FF Plunger	Pin ㉗	High	Low	Low	High
Mechanical Action		STOP	PLAY	FF	RWD

Fig. 8-4 TAPE SELECTOR OPERATION

8-2-3. TAPE SELECTOR OPERATION

When a cassette tape is inserted and the switches SW901 and SW902 are turned ON or OFF, the signal combination as shown in Fig. 8-5 will be input through Pins ㉝ and ㉞ of the IC4 (LM6504-145). Through the combination of "LOW" and "HIGH" at these input pins ㉝ and ㉞ , the signals to control the REC equalizer, bias voltage, etc. will be output from IC4 (LM6504-145) as shown in Fig. 8-6.

Each POSITION lights at "L" output

* In Pin Nos. ㉝ and ㉞, same as in other switch inputs, when the switch is pressed, the input to Micro Computer is switched from "H" level to "L" level.

[Input]

T.S.IN METAL	T.S. IN CrO_2
Pin No.	Pin No.
(33)	(34)
L	L
L	H
H	H
H	L

Fig. 8-5 INPUT

[Output]

	Pin No.	Pin No.	Pin No.
	(30)	(31)	(32)
NORMAL	H	H	L
CrO_2	L	H	H
METAL	H	L	H
	H	L	H

Fig. 8-6 OUTPUT

8-3. EXPLANATION OF CIRCUITS

8-3-1. MIC/LINE AMPLIFIER (REFER TO FIG. 8-7)

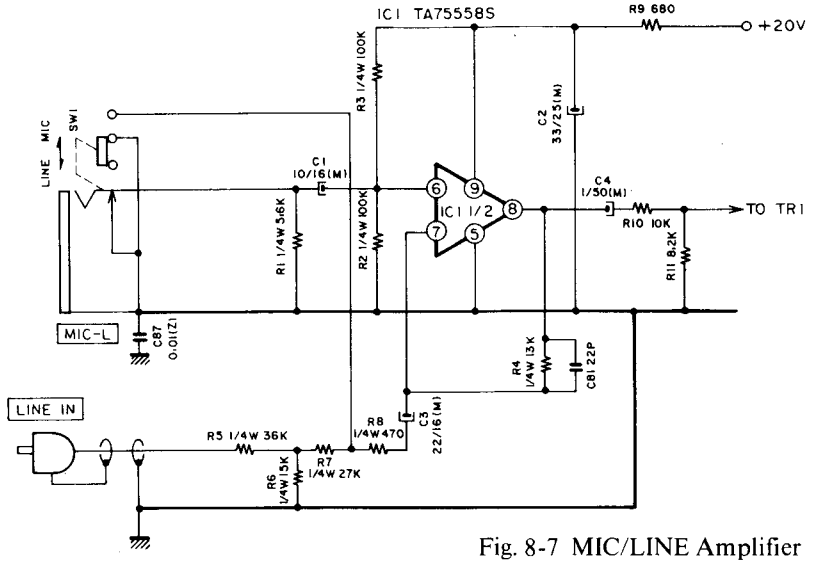


Fig. 8-7 MIC/LINE Amplifier

On MIC input, the IC1 becomes a non-inversion amplifier and with the MIC jack in, SW1 is connected to the MIC side and the signal line of the line input is grounded and at the same time R8 is grounded. On LINE input, IC1 operates as an inversion amplifier and the signal line of the MIC input is grounded.

The level of LINE input signal is higher than that of MIC input signal but it is made equal to the MIC input signal by the ratio of R5 : R6. R4 and C81 are a resistor and a capacitor for feedback, and C81 is to attenuate the high frequency band and R4 is to determine the gain of the amplifier by means of the feedback. Essentially R4 and C81 are to attenuate the low frequency band but because of the frequency compensating circuit in the feedback (N.F), they are inverted by the output to attenuate the high frequency band and the cut-off frequency 1fH will be:

$$fH = \frac{1}{2\pi \cdot C81 \cdot R4} \quad (Hz)$$

C4 is a capacitor to attenuate the low frequency band and the low frequency cut-off fL will be determined by the load impedance RL of the amplifier:

$$fL = \frac{4}{2\pi \cdot C4 \cdot RL} \quad (Hz)$$

8-3-2. INTERMEDIATE AMPLIFIER AND A.L.C. (AUTOMATIC LEVEL CONTROL) CIRCUIT (REFER TO FIG. 8-8)

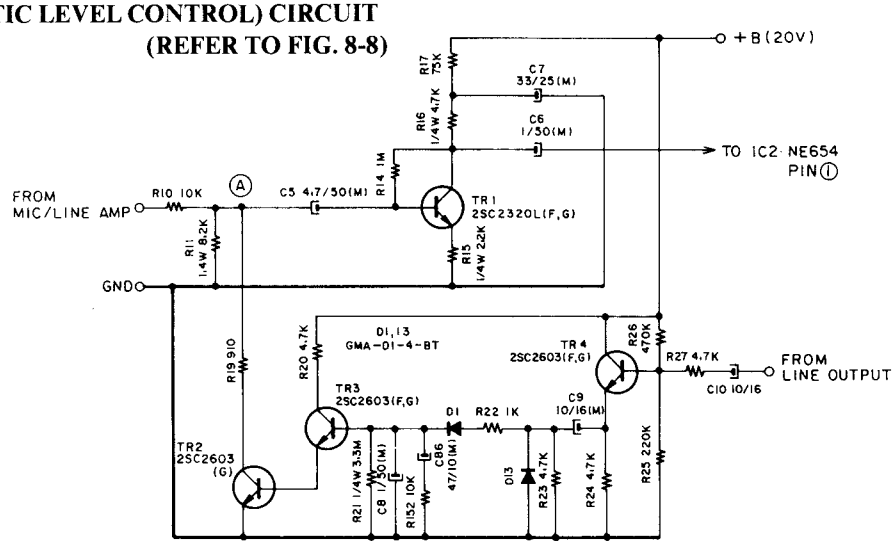


Fig. 8-8 Intermediate Amplifier and A.L.C.

The automatic level control circuit detects the line output signal with the emitter follower of TR4, rectifies it (because of distortion) and drives the transistor TR2 arranged in parallel with the signal line, thus controlling the level. This A.L.C. circuit controls the operating level only on levels higher than +3VU (Dolby level).

If the level at point Ⓐ to be controlled by the automatic level control is high, the distortion increases and therefore, the output level from the IC1 is lowered by the voltage divider R10 and R11. The internal amplification by TR1 is provided to amplify the level so it is restored to the level at the voltage divider input.

8-3-3. IC2 (NE-654) AND IC3 (NE-652) DOLBY CIRCUIT OPERATION

IC3 (NE652) is a single channel Dolby B/C. processor which was developed on condition that it is used in combination with the IC2 (NE654), a switching IC.

1) Encode Operation (When Recording)

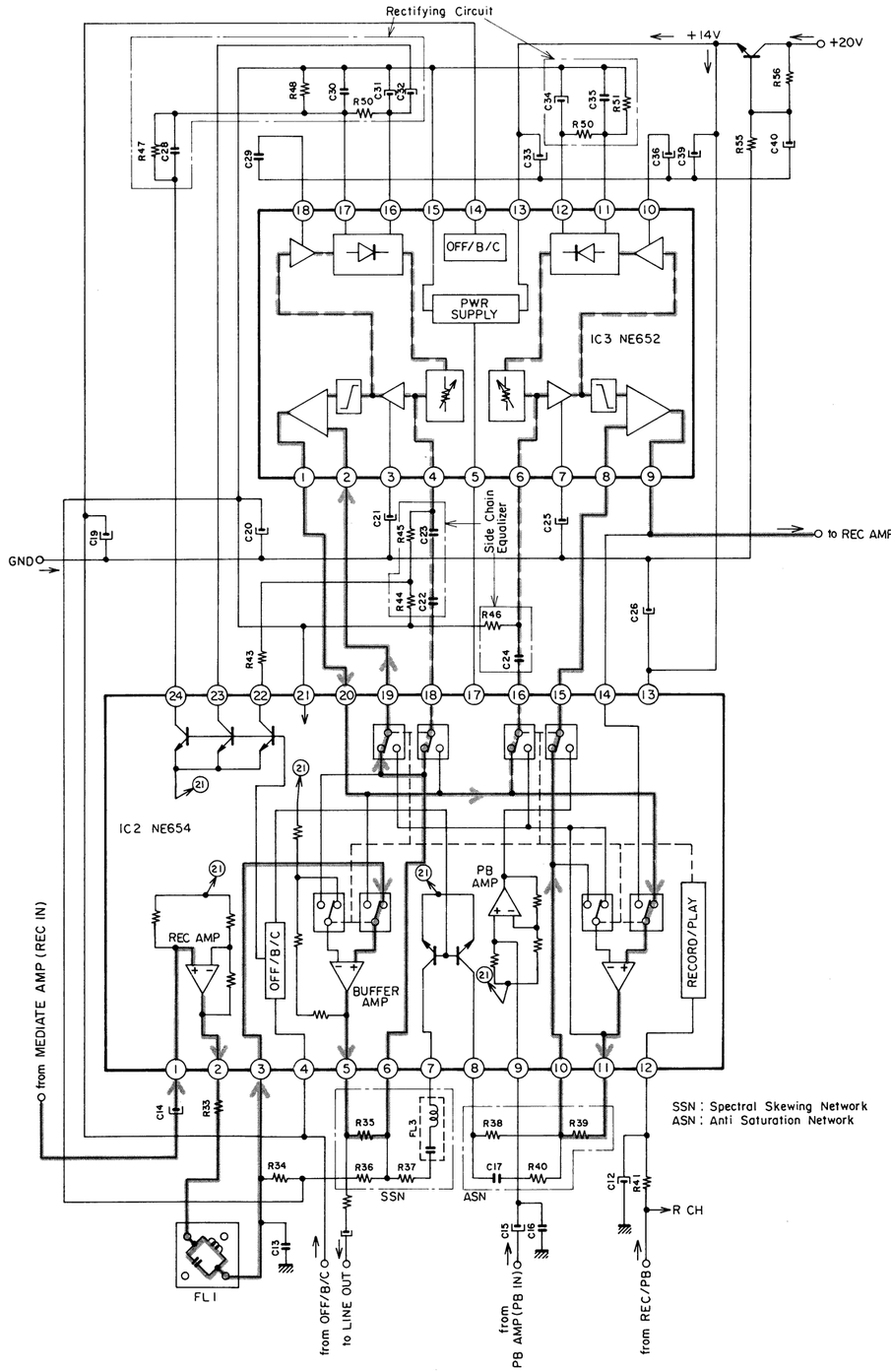


Fig. 8-9

The level at Pin ⑫ pf IC2 (NE654) becomes 14V and the electronic switch in the IC is switched to REC mode.

C-Type Encode

When the Dolby noise reduction SW is set to "ON" and the Dolby B/C selector, to "C", the Pin ④ of IC2 (NE654) becomes 12.5V and the internal transistor connected to Pins ⑦ and ⑧ is turned ON to create the Dolby-C state. The 12.5V is also connected to Pin ⑭ of IC3 (NE652) so that IC3 (NE652) is also placed in the Dolby - C state.

In order to minimize effects such as induction on the input signal, the output impedance is reduced by a buffer amplifier and the high frequency band above 19.8 kHz is attenuated through the SSN (Spectral Skewing Network) filter consisting of R35 - R37 and FL-3, thus preventing the malfunction of the IC.

The IC2 (NE-654) output from Pin ⑲ is connected to an adding amplifier of the main path through Pin ② of IC3 (NE652). Another output from Pin ⑱ of the IC2 (NE-654) passes through the side chain equalizer and then enters the remaining side chain circuit through Pin ④ of the IC3 (NE-652). This signal, after receiving signal processing such as integration and rectification is the input of the adding amplifier and its output is supplied to IC3 Pin ①. This is the signal path at the high-level stage.

The signal output from IC3 (NE652) pin ① is passed into the low-level stage through IC2 (NE654) Pin ⑳ and the buffer amplifier. The high frequency band component is reduced by about 4dB at 10 kHz in the REC ASN (Anti-saturation network) to improve the saturation level, and then the resultant signal is output from Pins ⑮ and ⑯. As in the case of the high-level circuit, the main path signal goes to IC3 (NE652) Pin ⑧ and another signal passes through the side chain equalizer and through IC3 Pin ⑥, then enters the side chain circuit. This is the low-level signal path and the only difference from the preceding high-level stage is that the threshold level is lower.

B-Type Encode

When the Dolby B/C selector switch is placed in the B-type position, the transistors internal to IC2 which are connected to Pins ㉒, ㉓ and ㉔ of IC2 (NE-654) are turned ON and the turnover of the side chain is switched to the one for B-type. Also, the level at Pin ⑭ of the IC2 (NE654) becomes 3.9V and the state inside the IC3 is changed to the B-type operation. The input signal does not pass the SSN (Spectral Skewing Network) filter because the internal transistor connected to the IC3 (NE652) Pin ⑭ is OFF and so the signal enters the high-level stage with the turnover changed. In this high-level stage circuit, the signal is processed in the same manner as in C-type, the output from IC3 (NE652) Pin ① being connected to IC2 (NE654) Pin ⑳.

Because the internal transistor connected to the IC2 (NE654) is OFF, the signal does not pass the ASN (Anti-Saturation Network) filter but enters the low-level stage, and in such a case, since the IC3 (NE652) is set for the B-type, the adding amplifier is flat.

2) Decode Operation (in Playback)

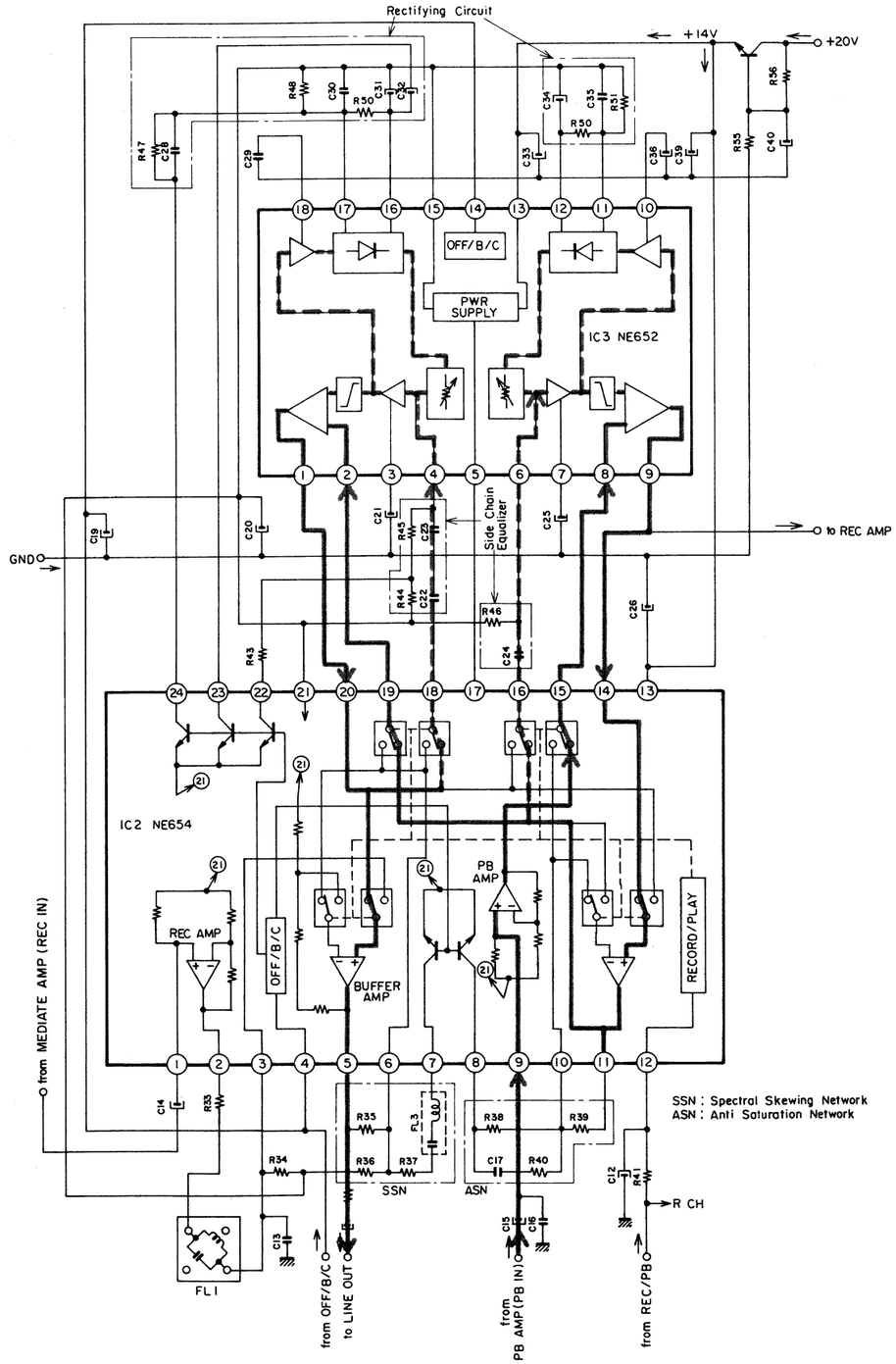


Fig. 8-10

The level at IC2 (NE654) Pin ⑫ becomes 0.7V and the switch in the IC is switched to the playback state.
The basic operation of the decode circuit can be considered to be same as the encode operation except for the following points:

a. When encoding in the IC3 (NE652), the signal is processed in the sequence of high-level stage to low-level stage, but when decoding, the sequence is reversed.
b. In REC, the ASN (Anti-Saturation Network) filter attenuates the high frequency band components but the PB ASN (Anti-Saturation Network) filter compensates by a complementary increase in high frequency band components.
c. The SSN (Spectral Skewing Network) in REC is provided with a complementary SDN (Spectral De-skewing Network) with the same function as in Item b ASN in PLAYBACK.
d. In ENCODE and DECODE, since there are two buffer amplifiers in the IC2 (NE654), the characteristics in the preceding Items b ASN and c SSN are changed by varying the point at which the negative-feed-back is imposed.

8-4. RECORDING AMPLIFIER AND EQUALIZER CIRCUIT (REFER TO FIG. 8-11)

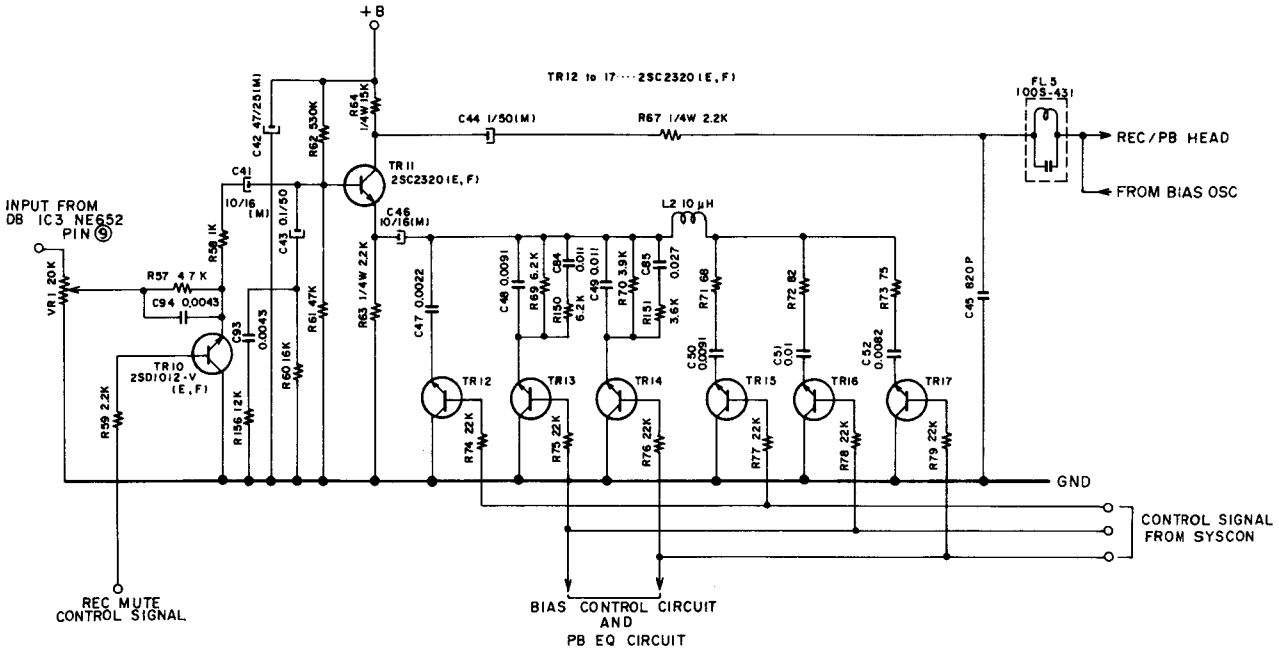


Fig. 8-11 Recording Amplifier and Equalizer Circuit

The recording signal output from the Dolby IC3 (NE652) Pin ⑨ is passed through VR2 (VR for setting recording level) and then supplied to the recording amplifier circuit consisting of TR11 (2SC2320). The functions of the elements in Fig. 8-11 are described as follows:

VR1: To set (adjust) the recording level

TR10: When the base input is "H", TR10 (2SD1012) is turned ON and REC Mute is achieved.

FL5: Coil for bias trap (to block the bias current)

R67: Resistor for constant-current drive (to prevent current variations to the head even if the impedance of the head is changed).

TR12 to TR17: Switching transistors to select the equalizer elements connected to the emitter of TR11 (2SC2320) by means of the control signal from the SYSCON. The collector grounding used here is to reduce the transistor resistance when "ON".

C50 to C52: To determine together with FL2, the peak frequency of each tape position.

R71 to R73: Damping resistors to reduce the peak value of each tape position in a controlled manner.

C47: To determine the slope from the peak value when normal tape is used.

C48, R69, C84, R150: To determine the slope from the peak value when CrO_2 tape is used.

C49, R79, C85, R151: To determine the slope from the peak value when metal tape is used.

8-5. BIAS OSCILLATOR CIRCUIT (REFER TO FIG. 8-12)

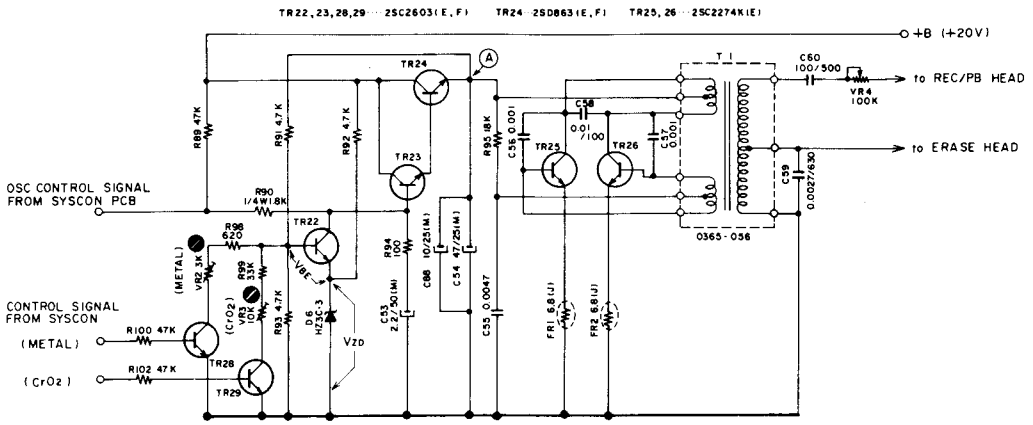


Fig. 8-12 Bias Oscillator Circuit

The bias oscillating circuit is divided into the power source to adjust the oscillating intensity and the oscillator to produce the waveform. The oscillation start or stop condition is selected by the "H" or "L" signal output from IC4 (LM6405H-145) Pin ㉔ of SYSCON PCB. The "L" signal output at IC4 (LM6405-145) Pin ㉔ is inverted by IC6 (M54519P), the base of TR23 becomes "H", TR23 and TR24 conduct, power is supplied to the oscillator and the oscillation starts. The oscillating intensity must be changed to suit normal, CrO_2 or metal tape, and this can be done by changing the potential at Point Ⓐ.

When normal tape is used, TR28 and TR29 are OFF, and therefore, the following formula can be used.

$$Vout = \frac{(V_{ZD} + V_{BE})(R91 + R93)}{R93} (V)$$

For CrO_2 tape, the CrO_2 control signal becomes "H" and TR29 is turned ON, and therefore, (R99 + VR3) is put in parallel with R93. The ratio R91 : R93 is changed to vary the potential at Point Ⓐ. For metal tape, the metal control signal becomes "H" and TR28 is turned ON, and (R98 + VR2) is put in parallel with R93. The ratio R91 : R93 is changed to vary the potential at Point Ⓐ.

8-6. PLAYBACK AMPLIFIER

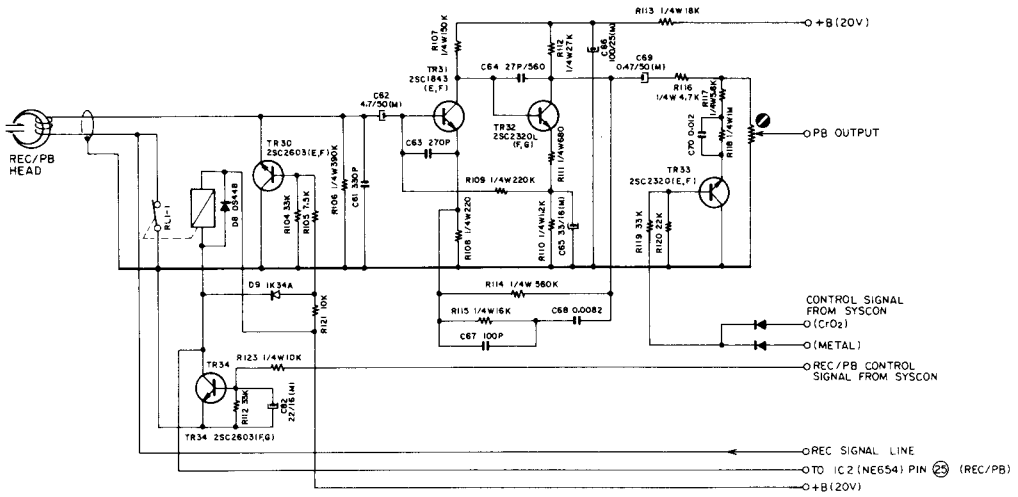


Fig. 8-13 Playback Amplifier

This is a two-stage double-coupled amplifier. In PLAYBACK, "H" signal is output from IC4 (LM6405H-145) Pin ㉕ of the SYSCON P.C Board, and inverted by IC6 (M54519P). TR6 is turned ON, TR34 base of the pre-amplifier becomes "H", relay (RL-1) is turned ON and the REC signal line is grounded. The level at TR30 base becomes "L" and, therefore, TR30 is turned OFF to create the playback state.

The ON/OFF operation of TR33 changes the playback equalizer characteristics to suit normal, CrO_2 and metal tapes as required.

IX. HEAD AND TAPE SPEED ADJUSTMENTS

9-1. REC/PB HEAD ADJUSTMENT

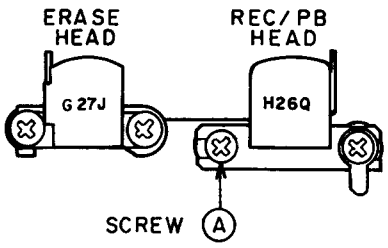


Fig. 9-1 TOP View of the Heads

Playback a 10kHz Azimuth Alignment tape (AT-750778) and Adjust the screw Ⓐ until the output levels of both channels are maximum.
After Adjustment, paintlock the screw Ⓐ.

9-2. TAPE SPEED ADJUSTMENT

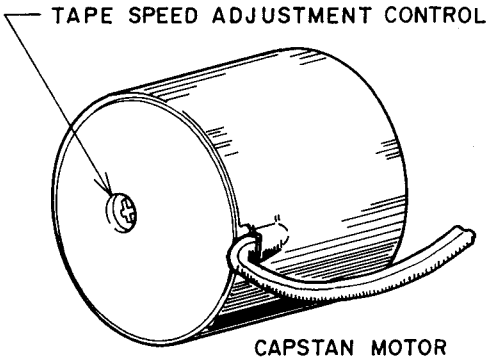


Fig. 9-2 Tape Speed Adjustment

Connect a frequency counter to line output terminals. Playback a 1,000 Hz Tape Speed Test tape (AT-751263) or a 3,150 Hz Tape Speed Test tape (AT-751263) and adjust a tape speed adjustment volume (see Fig. 9-2) to obtain a tape speed of 1,000 Hz ±1.0%, or 3,150 Hz ± 1.0 %.

X. AMPLIFIER ADJUSTMENTS

10-1. PRE-AMPLIFIER ADJUSTMENT POINT

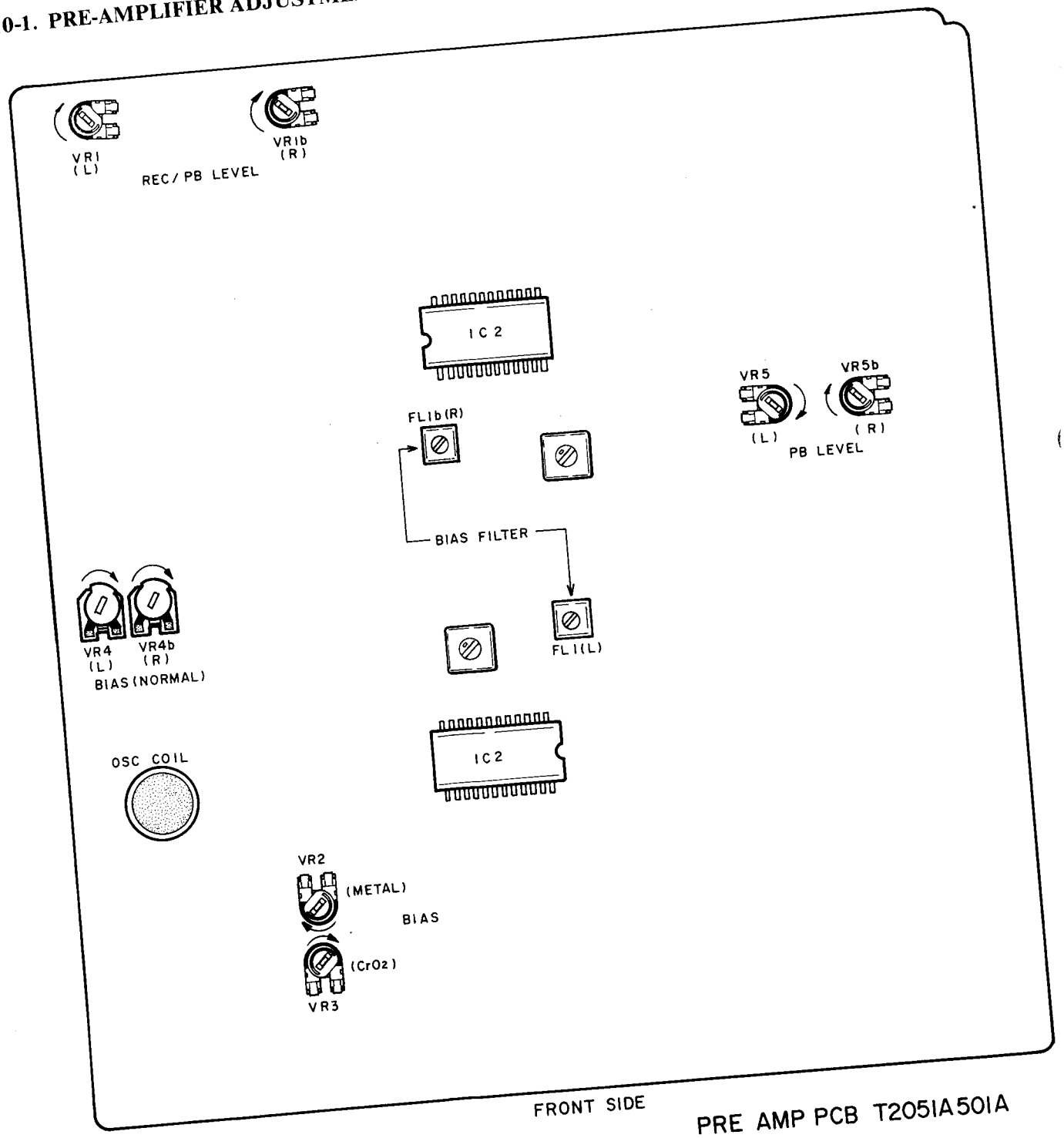


Fig. 10-1 Pre-Amplifier Adjustment Points

Step	ADJUSTMENT ITEM	TEST TAPE SUPPLY SIGNAL	MODE	ADJUSTMENT POINT	RESULT	REMARKS
1	Play Back level	315 Hz or 333 Hz	P.B	VR5	(315 Hz) −5.5 ±0.2 dBm or (333 Hz) −6.1 ±0.2 dBm	* Note 1
2	NORMAL Position Frequency Response	Normal Blank Tape 1,000 Hz, 10,000 Hz −25.5 dBm Recording	REC/P.B	VR4	1,000Hz and 10,000 Hz levels are within ±0.5 dB	* See Note 2
3	CrO_2 Position Frequency Response	CrO_2 Blank Tape 1,000 Hz, 10,000 Hz −25.5 dBm Recording	REC/P.B	VR3	1,000 Hz and 10,000 Hz levels are within ±0.5 dB	* See Note 2
4	METAL Position Frequency Response	Metal Blank Tape 1,000 Hz, 10,000 Hz −25.5 dBm Recording	REC/P.B	VR2	1,000 Hz and 10,000 Hz levels are within ±0.5 dB	* See Note 2
5	Recording level	Normal Blank Tape 1,000 Hz, −5.5 dBm Recording	REC/P.B	VR1	−5.5 ±0.3dBm (410 mV)	* See Note 2
6	Bias Filter	METAL Blank Tape No Signal input	REC PAUSE	FL1	AC Voltmeter Indicates minimum	

Note 1: As the test tape has been changed, set to −6.1 ±0.2 dBm when using 333 Hz test tape. For details, refer to Service Guide (No. 0012) issued in Nov., 1982.

Note 2: Use the following cassette measuring tapes

Normal tape : Maxell UD C-60
CrO_2 tape : TDK SA C-60
Metal tape : TDK MA C-60

XI. CLASSIFICATION OF VARIOUS P.C BOARD

P.C BOARD TITLES AND IDENTIFICATION NUMBERS

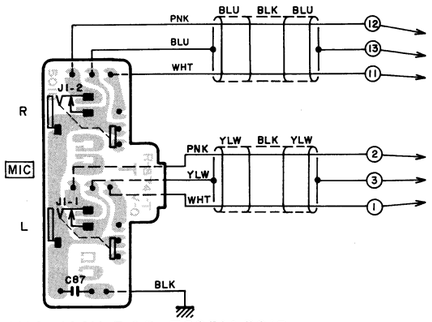
P.C Board Title	P.C Board Number
Pre-Amp P.C Board	T2051A501A
Jack P.C Board	T2051A501B
Syscon P.C Board	T2051A502A
Intermediate P.C Board	T2051A502B
Remocon P.C Board	T2051A502C
Power P.C Board	T2051B5030
Detector P.C Board	CMS01D5010
Connector P.C Board	CMS01D5020

XII. DC RESISTANCE OF VARIOUS COILS

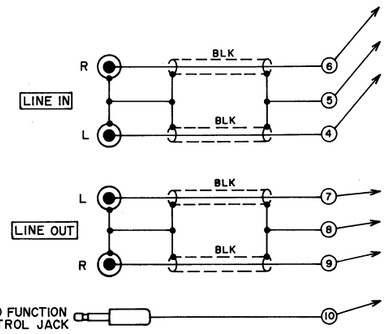
Parts	Designation	DC Resistance
PB/REC Head	HN424977	210 ohms ±20%
Erase Head	HJ213270	3.5Ω
Solenoid	0730PLT	144 ohms ±10%
Relay	LAB2NS	1000 ohms

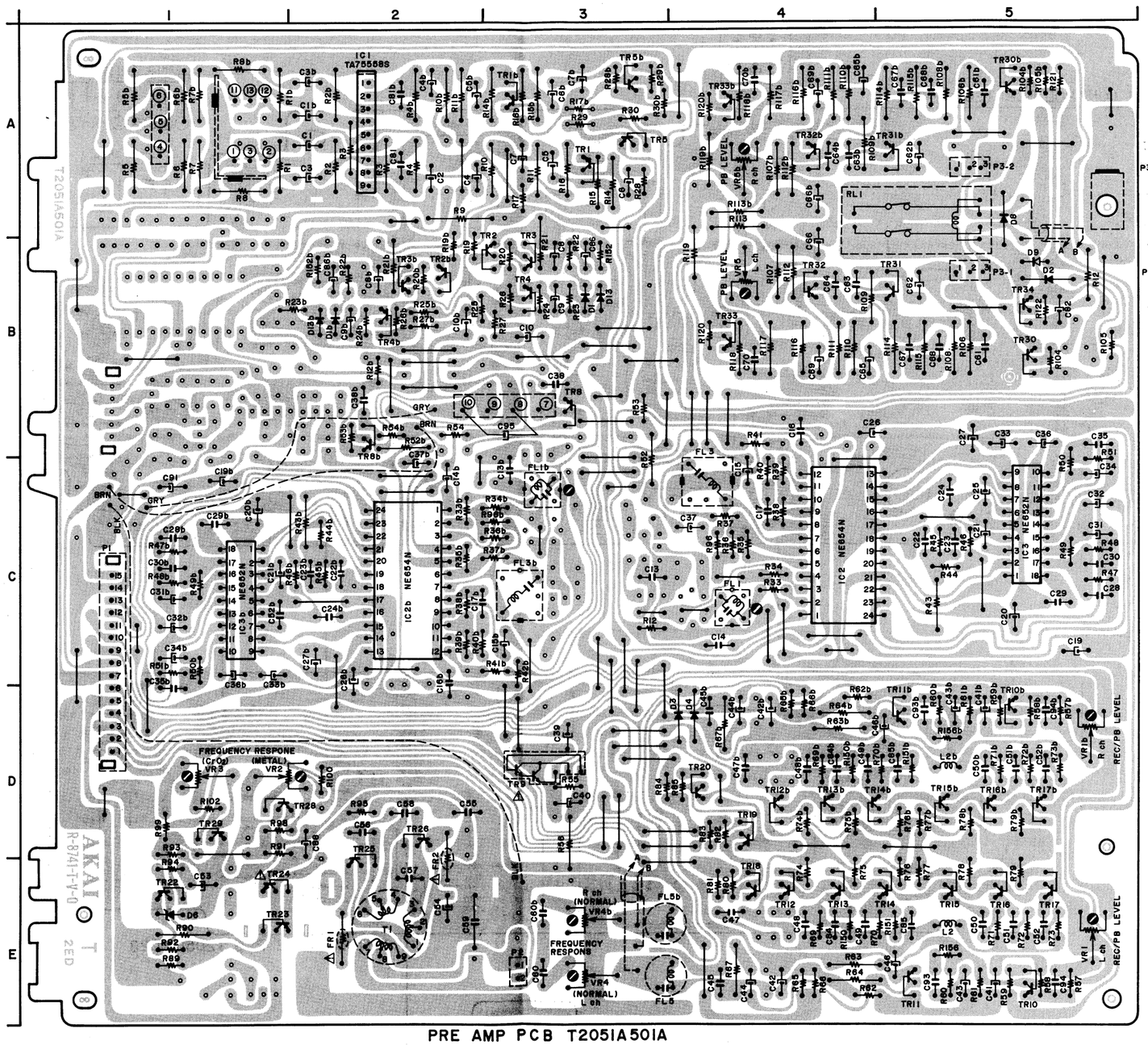
COMPOSITION OF VARIOUS P.C BOARDS

1) PRE-AMP P.C BOARD T2051A501A, MIC JACK P.C BOARD T2051A501B

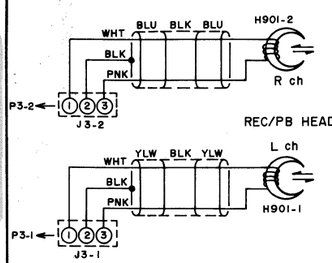


MIC JACK PCB T2051A501B





PRE AMP PCB T2051A501A



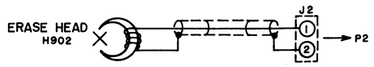
LOCATION OF IC, TR & PIN CONNECTORS

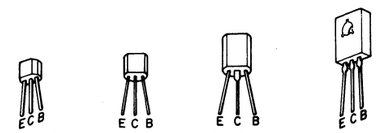
IC1....A2		
IC2....C4	C2b....C2	
IC3....C5	C3b....C1	
TR1....A3	TR1b....A3	
TR2....B3	TR2b....B2	
TR3....B3	TR3b....B2	
TR4....B3	TR4b....B2	
TR5....A3	TR5b....A3	
TR8....B3	TR8b....B2	
TR9....D3		
TR10...E5	TR10b...D5	
TR11...E5	TR11b...D5	
TR12...E4	TR12b...D4	
TR13...E4	TR13b...D4	
TR14...E5	TR14b...D5	
TR15...E5	TR15b...D5	
TR16...E5	TR16b...D5	
TR17...E5	TR17b...D5	
TR18...E4		
TR19...D4		
TR20...D4		
TR22...E1		
TR23...E1		
TR24...E1		
TR25...E2		
TR26...E2		
TR28...D1		
TR29...D1		
TR30...B5	TR30b...A5	
TR31...B5	TR31b...A5	
TR32...B4	TR32b...A4	
TR33...B4	TR33b...A4	
TR34...B5		

① to ⑥....A1
⑦ to ⑩....B3
⑪ to ⑬...A1

J1.....C1
P2.....E3
P3-1.....B5
P3-2.....A5

TR1,32.....2SC2320L(F,G)
TR2.....2SC2603(G)
TR3,4,34.....2SC2603(F,G)
TR5,33.....2SC2320(F,G)
TR8.....2SD1010(R,S)
TR9.....2SD894
TR10.....2SD1012-V(E,F)
TR11tol7.....2SC2320(E,F)
TR18to20.....2SA1115(E,F)
TR22,23,28,29....2SC2603(E,F)
TR24.....2SD863
TR30.....2SD1012-V(F,G)
TR31.....2SC1843(E,F)

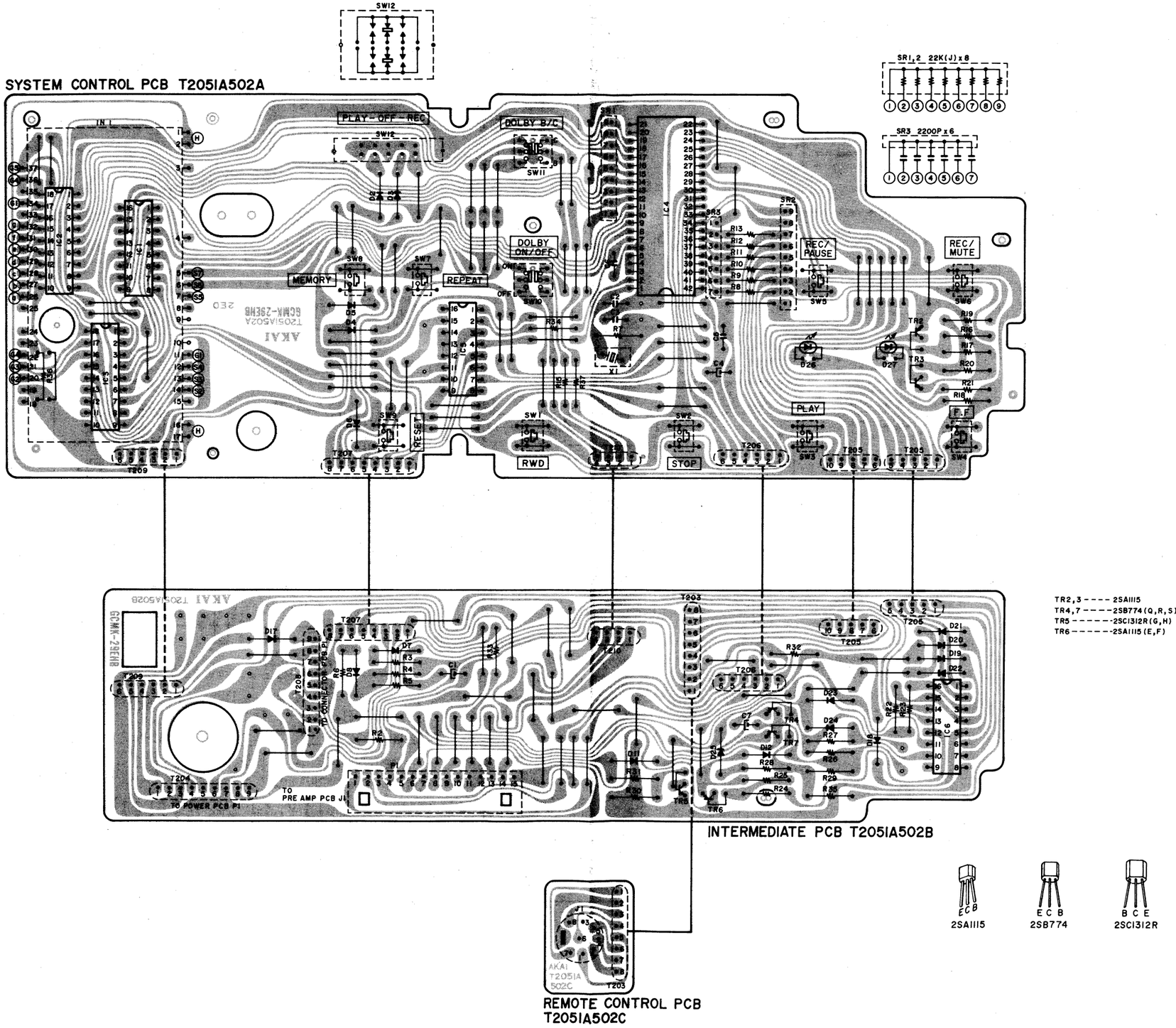




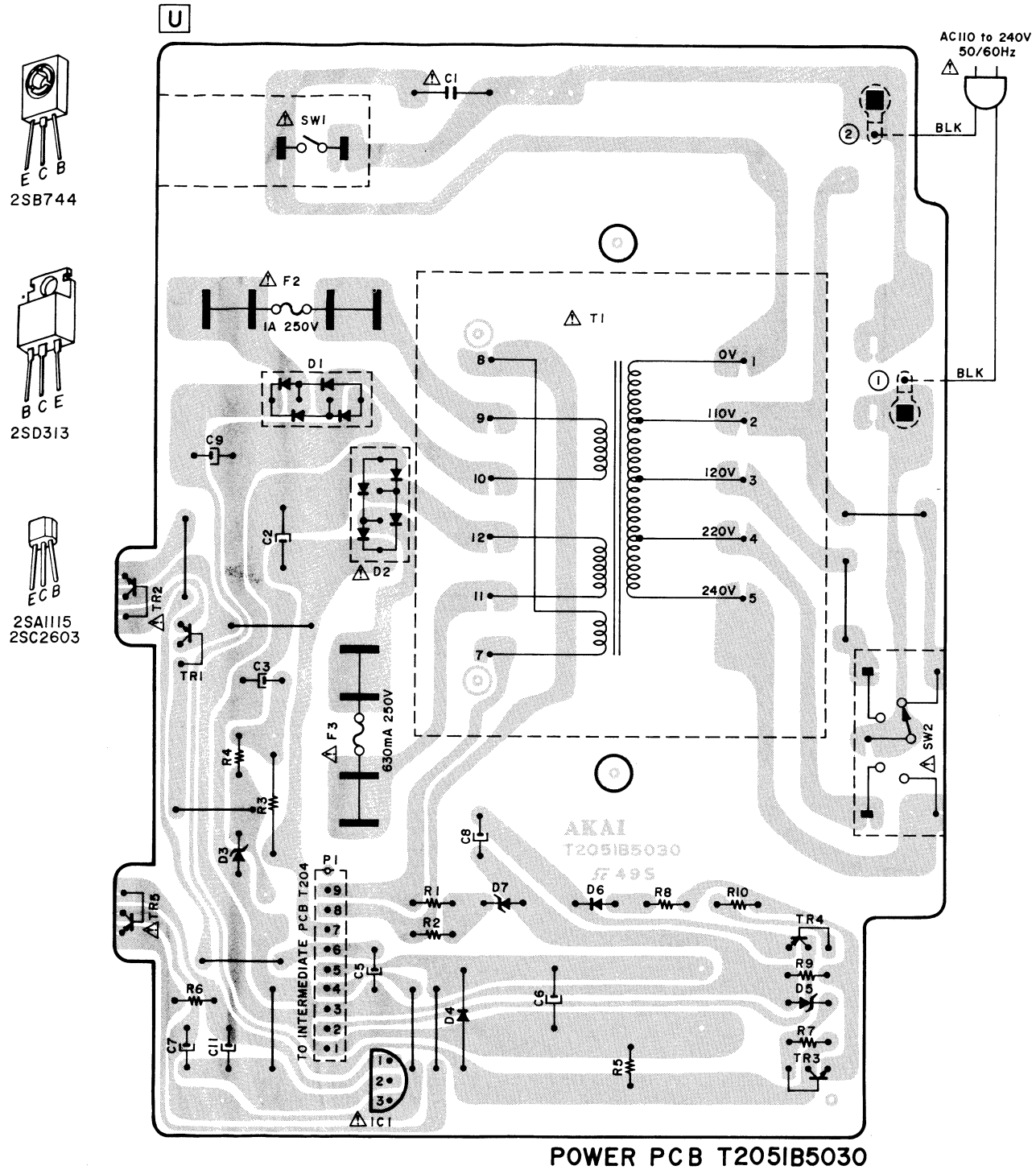
WARNING: ⚠ INDICATES SAFETY CRITICAL COMPONENTS FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS

AVERTISSEMENT: ⚠ IL INDIQUE LES COMPOSANTS CRITIQUES DE SÉCURITÉ. POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL, NE REMPLACER QUE DES PIÈCES RECOMMANDEES PAR LE FABRICANT

2) SYSTEM CONTROL P.C BOARD T2051A502A, INTERMEDIATE P.C BOARD T2051A502B, REMOTE CONTROL P.C BOAD T2051A502C



3) POWER P.C BOARD T2051B5030 (U MODEL)

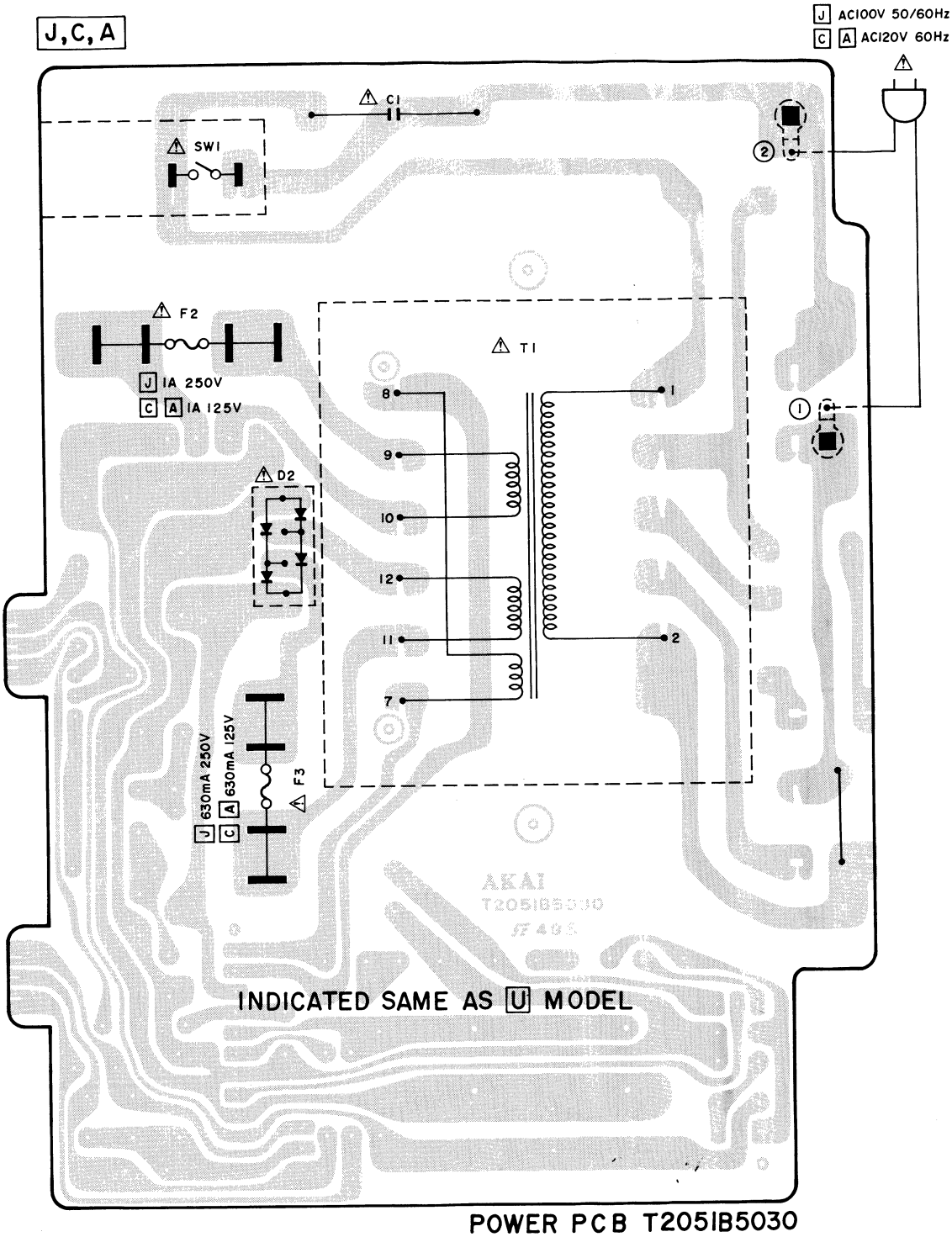


TR1,3 ----2SC2603(E,F)
TR2 ----2SD313(E,F)
TR4 ----2SA1115(E,F)
TR5 ----2SB744(P,Q)

WARNING: ⚠INDICATES SAFETY CRITICAL COMPONENTS FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS

AVERTISSEMENT: ⚠IL INDIQUE LES COMPOSANTS CRITIQUES DE SÉCURITÉ. POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL, NE REMPLACER QUE DES PIÈCES RECOMMANDEES PAR LE FABRICANT

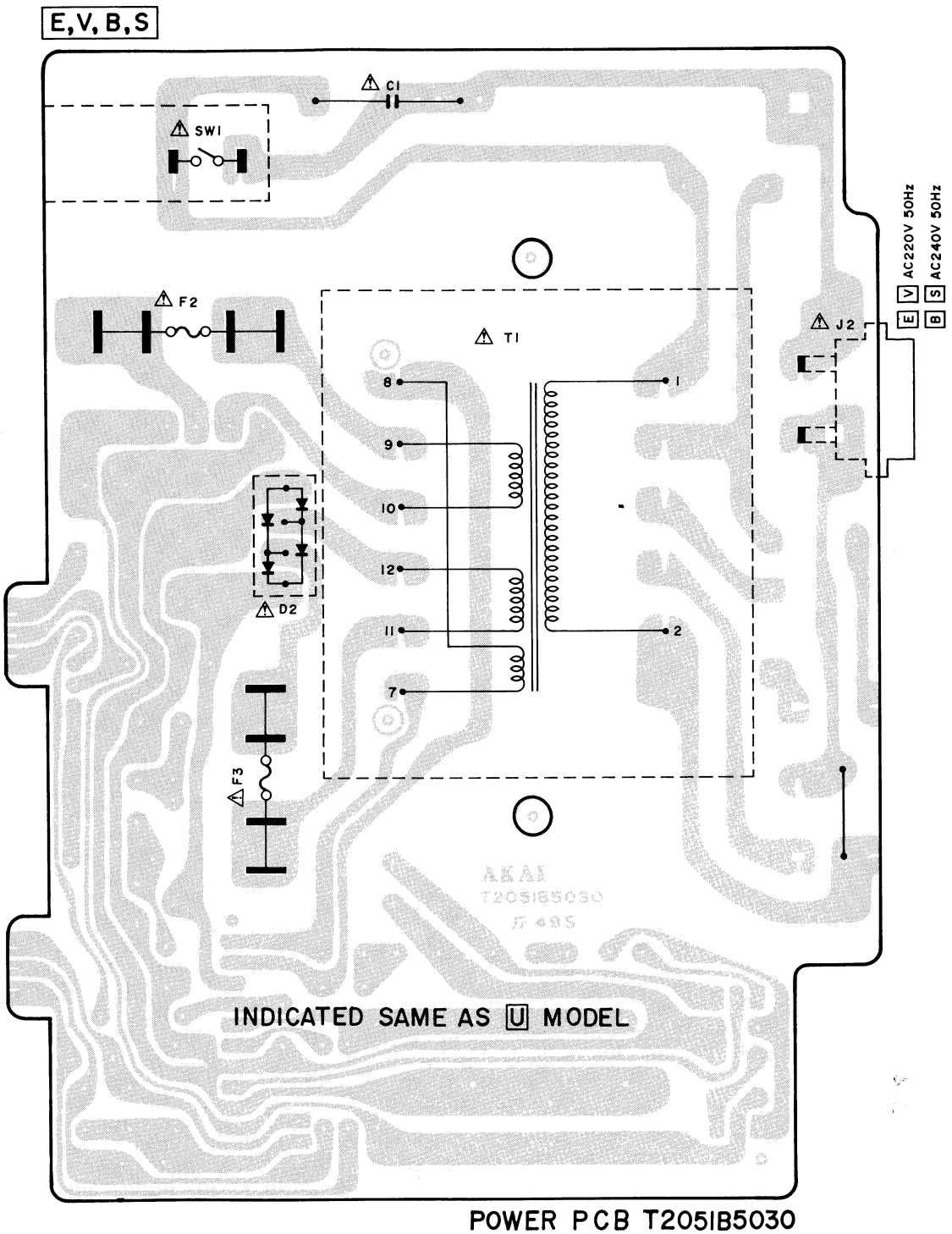
4) POWER P.C BOARD T2051B5030 ([J,C,A] MODEL)



WARNING: ⚠INDICATES SAFETY CRITICAL COMPONENTS FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS

AVERTISSEMENT: ⚠IL INDIQUE LES COMPOSANTS CRITIQUES DE SÉCURITÉ. POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL, NE REMPLACER QUE DES PIÈCES RECOMMANDEES PAR LE FABRICANT

5) POWER P.C BOARD T2051B5030 (E,V,B,S MODEL)



POWER PCB T2051B5030

WARNING: ⚠INDICATES SAFETY CRITICAL COMPONENTS FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS

AVERTISSEMENT: ⚠IL INDIQUE LES COMPOSANTS CRITIQUES DE SÉCURITÉ. POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL, NE REMPLACER QUE DES PIÈCES RECOMMANDEES PAR LE FABRICANT

SECTION 2

PARTS LIST

TABLE OF CONTENTS

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1. MECHA CMS01 BLOCK (1/2) 38
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4. SYSCON P.C BOARD BLOCK 42
5. POWER P.C BOARD BLOCK 42
6. ASSEMBLY BLOCK 42
7. FINAL ASSEMBLY BLOCK 44

INDEX 45

Please refer to COMMON LIST FOR SERVICE PARTS, for Resistor and Capacitor which are not listed in this lit.

ATTENTION

1. When placing an order for parts, be sure to list the parts no. model no., and description. There are instances in which if any of this information is omitted, parts cannot be shipped or the wrong parts will be delivered.
2. Please be careful not to make a mistake in the parts no. If the parts no. is in error, a part different from the one ordered may be delivered.
3. Because parts number and parts unit supply in the Preliminary Parts List may be partially changed, please use this parts list for all future reference.

HOW TO USE THIS PARTS LIST

1. This Parts List shows the parts that are considered necessary for repairs. Other parts, such as resistors and capacitors, are shown in the "Common List for Service Parts". Select and order such parts from the "Common List for Service Parts".
2. The Recommended Spare Parts shows those parts in the Parts List which are considered particularly important for service.
3. Parts not shown in the Parts List and "Common List for Service Parts" will not be supplied in principle.
4. How to read list

a) Mechanism Block

2. HEAD BASE BLOCK

REF. NO.	PARTS NO.	DESCRIPTION
2-1x	BH-T2023A320A	HEAD BASE BLOCK GX-F66R
2-2	HP-H2206A010A	HEAD R/P PR4-8FU C
2-3	ZS-477876	PAN20x03STL CMT
2-4	ZS-536488	BID20x08STL CMT
2-5	ZG-402895	CS ANGLE ADJUST SPRING

SP (Service Parts) Classification

A small "x" indicates the inability to show that particular part in the Photo or Illustration.

This number corresponds with the individual parts index number in that figure

This number corresponds with the Figure Number

b) P.C Board Block

6. SYS. CON. P.C BOARD BLOCK

REF. NO.	PARTS NO.	DESCRIPTION
6-1	BA-T2034A070A	PC SYS CON BLK GX-F44R
6-IC1	EI-324536	IC HD14049BP
6-IC2	EI-336801	IC MB8841-564M
6-IC3	EI-331661	IC SN7405N
6-IC4	EI-336725	IC M54527P
6-TR1to4	ET-200985	TR 2SC2603 F,G
6-TR5to28	ET-554657	TR 2SA733A P,Q
6-D1	ED-318292	D SILICON H 1S2473T-77 T26
6-D2to4	ED-308952	D GERMA V 1K34A-LR F07
6-D5to10	ED-318292	D SILICON H 1S2473T-77 T26
6-X1	EI-318384	OSC X'TAL NC-18C 3.579545MHZ

SP (Service Parts) Classification

This reference numbers corresponds with symbol numbers of Schematic Diagrams.

5. Both the kind of part and installation position can be determined by the Parts Number. To determine where a parts number is listed, utilize Parts Index at end of Parts List. It is necessary first of all to find the Parts Number. This can be accomplished by using the Reference Number listed at right of parts number in the Parts Index.

WARNING

⚠ INDICATES SAFETY CRITICAL COMPONENTS. FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS.

AVERTISSEMENT

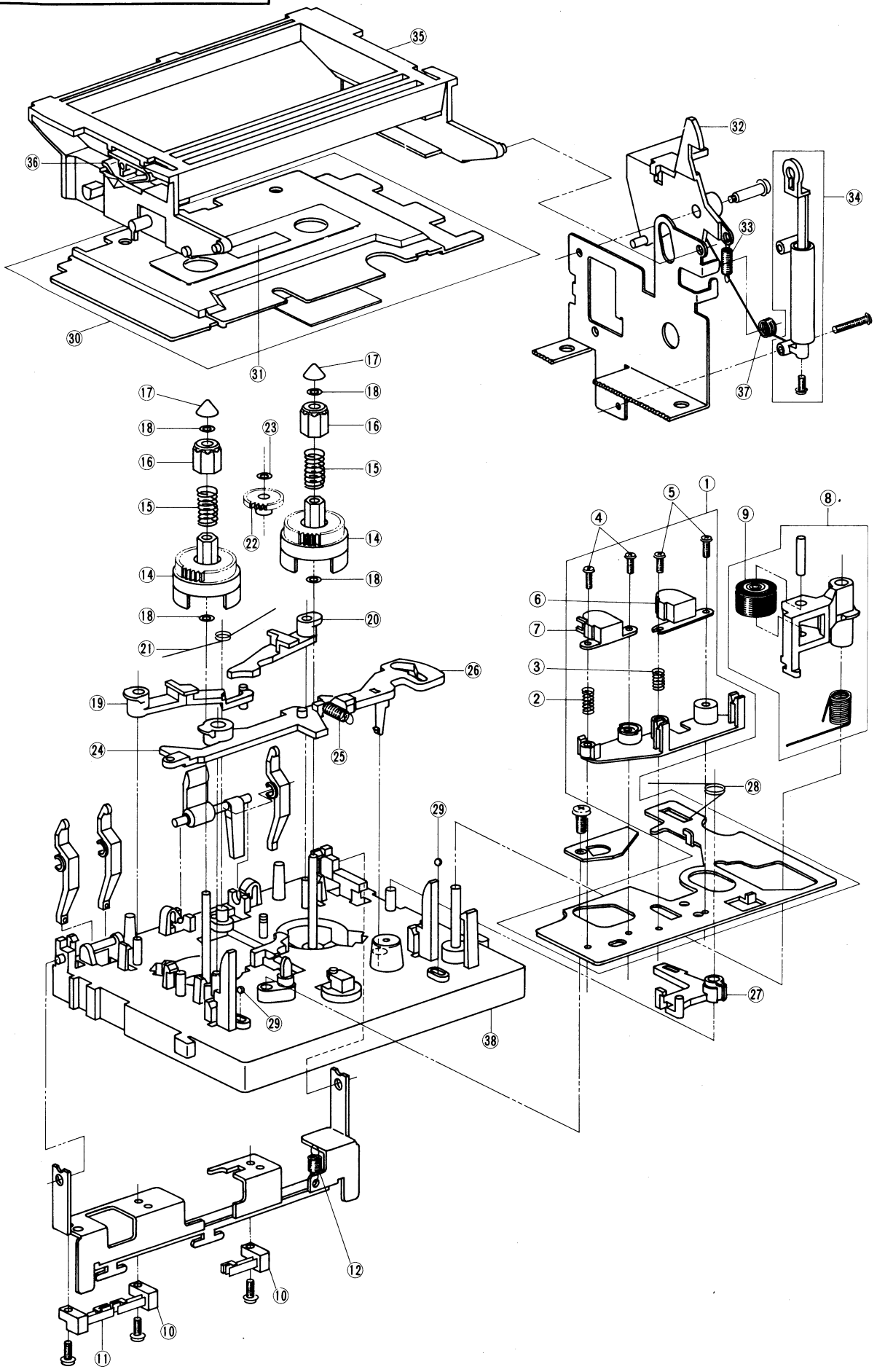
⚠ IL INDIQUE LES COMPOSANTS CRITIQUES DE SÉCURITÉ. POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL, NE REMPLACER QUE DES PIÈCES RECOMMANDEES PAR LE FABRICANT

RECOMMENDED SPARE PARTS LIST

Because, if the parts listed below are on hand, almost any repair can be accomplished, we suggest that you stock these Recommended Spare Parts Items.

REF. NO.	PARTS NO.	DESCRIPTION
1	BM-B314815	⚠ MOTOR (PULLEY) PART (M901)
2	BT-345762	⚠ TRANS POWER T2050 (J)
3	BT-345763	⚠ TRANS POWER T2050 (A, C)
4	BT-345754	⚠ TRANS POWER T2050 (B, S)
5	BT-345753	⚠ TRANS POWER T2050 (E, V)
6	BT-345761	⚠ TRANS POWER T2050 (U)
7	EC-337017	OSC CE CSB800A 0.8MHz
8	ED-330319	⚠ D SILICON DBA10B 100/1.0A
9	ED-308952	D GERMA V 1K34A-LR F07
10	ED-337093	D LED GL-9NG4 GRN
11	ED-328791	D LED GL-9PR4 RED
12	ED-344280	D SILICON GMA-01-FY2 F05
13	ED-301911	D SILICON H DS448
14	ED-306109	D SILICON W03B 100/1.0A
15	ED-338316	D ZENER V HZ22-1S1
16	ED-346286	D ZENER V HZ3C-3S1
17	ED-343958	D ZENER V HZ5A-2S1
18	ED-337259	D ZENER V HZ6A-3S1
19	EF-601942	⚠ FUSE SEMKO T 250V 0.63A (F3)(E,V,B,S)
20	EF-623103	⚠ FUSE SEMKO T 250V 1A (F2)(E,V,B,S)
21	EF-306124	⚠ FUSE TSC A 250V 0.63A (F3)(U,J)
22	EF-309387	⚠ FUSE TSC A 250V 1A (F2)(U,J)
23	EF-305703	⚠ FUSE TSC 125V 0.63A (F3)(C,A)
24	EF-310229	⚠ FUSE TSC 125V 1A (F2)(C,A)
25	EH-337695	FILTER DB 201AK-005 100kHz
26	EI-337013	IC LB1290
27	EI-337009	IC LC4049B
28	EI-344277	IC LM6405H-145
29	EI-300042	IC M54519P
30	EI-337835	IC NE652
31	EI-344291	IC NE654
32	EI-336995	IC NJM78L05A
33	EI-200938	IC TA75558S
34	EO-347162	COIL FIX 1 L-8 10,00 MH J
35	EO-337774	COIL OSC1 0365-056 100.0 kHz
36	EO-315758	COIL TUN 1 100S-431 100 kHz
37	EO-336738	COIL TUN 1 102AK-004 19.8 kHz
38	EP-337067	RELAY LEAD LAB2NS 2NO 18V
39	EP-344251	SOLENOID 0730PLT 12V (SL901,902)
40	ER-307565	R FUSE ERD2FC S10 1/4W 6R8J
41	ES-344253	SW LEAF MSW-1418J 01-1 NO (SW901,902)
42	ES-344257	SW LEAF MSW-1418L 01-1 NO (SW903)
43	ES-337843	SW PUSH ESB-64501 02-2
44	ES-344281	SW SLIDE SSY023
45	ES-336780	SW TACT KHH10902
46	ET-337188	⚠ TR 2SB774 P,Q
47	ET-336941	⚠ TR 2SD313 E,F
48	ET-311977	PHOTO SENSOR SPI-201
49	ET-200558	TR 2SA1115 E,F
50	ET-332422	TR 2SB774 Q,R,S
51	ET-517263	TR 2SC1312R G,H
52	ET-337258	TR 2SC1843 E,F
53	ET-310833	TR 2SC2274K E
54	ET-328578	TR 2SC2320 E,F
55	ET-344275	TR 2SC2320L F,G
56	ET-200505	TR 2SC2603 E,F
57	ET-200985	TR 2SC2603 F,G
58	ET-308141	TR 2SC2603 G
59	ET-332421	TR 2SD1010 R,S
60	ET-328437	TR 2SD1012-V F,G
61	ET-318239	TR 2SD863 E,F
62	ET-201580	TR 2SD894
63	EV-315416	R S-FIX H D8 3P 103
64	EV-315414	R S-FIX H D8 3P 203
65	EV-322413	R S-FIX H D8 3P 302
66	EV-315413	R S-FIX H D8 3P 503
67	EV-336785	R S-FIX H TM8KV2-1S 3P 0.50W 104
68	HE-337047	HEAD E HJ213270 C (H902)
69	HP-344252	HEAD R/P HN424977 (H901)
70	MB-344231	BELT 1.0 x D33.3CR HS60
71	MB-344905	BELT 1.2 x D38.2 CR HS60
72	MB-344230	BELT 3.0 x 0.5T x D61CRHS60
73	MI-B344207	ARM IDLER FR PART
74	MI-B344215	ARM IDLER TU PART
75	MI-B344228	FLYWHEEL PART
76	MP-336153	PINCH ROLLER (A)
77	MT-344187	REEL TABLE
78	MZ-344297	DUMPER ASSY

MECHA CMS01 BLOCK (1/2)



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ADDITIONAL SERVICE MANUAL

* This additional manual is only for the Model HX-M5 which used DOLBY IC HA-12038 or HA-12058 in its pre-amplifier section. Use this manual together with the HX-M5 Service Manual which has been published previously.

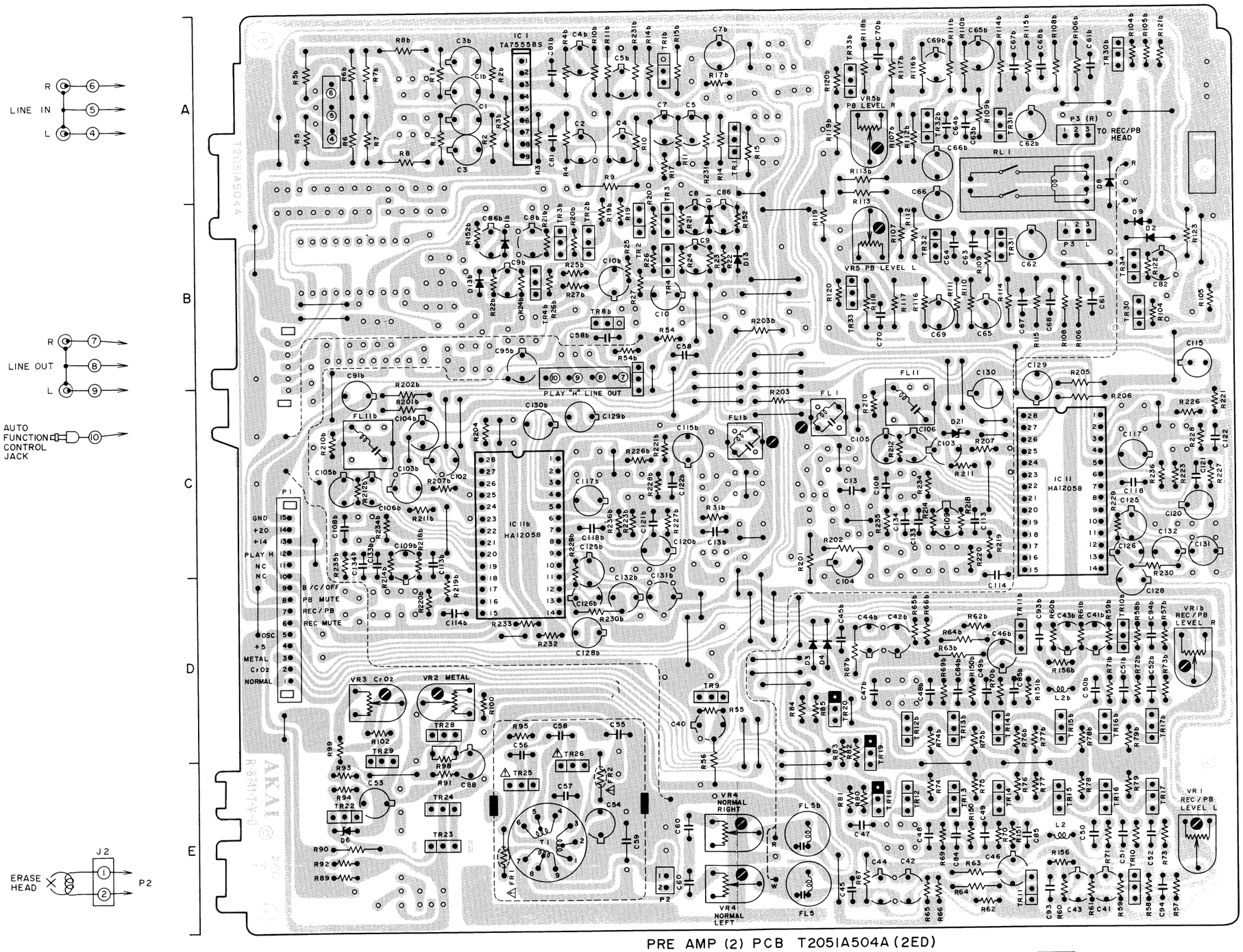
STEREO CASSETTE DECK

MODEL HX-M5

3. PRE AMP P.C BOARD BLOCK

REF. NO.	PARTS NO.	DESCRIPTION
3-1	BA-T2051A090A	PC PRE-AMP BLK HX-M5
3-IC1	EI-200938	IC TA75558S
3-IC11	EI-349196	IC HA12058 (IC58)
3-IC11	EI-336983	IC HA12038 (IC38)
3-TR1	ET-344275	TR 2SC2320L F,G
3-TR2	ET-308141	TR 2SC2603 G
3-TR3	ET-200985	TR 2SC2603 F,G
3-TR4	ET-200505	TR 2SC2603 E,F
3-TR8	ET-328437	TR 2SD1012-V F,G
3-TR9	ET-201580	⚠ TR 2SD894
3-TR10	ET-328437	TR 2SD1012-V F,G
3-TR11 to 17	ET-328578	TR 2SC2320 E,F
3-TR18 to 20	ET-200558	TR 2SA1115 E,F
3-TR22,23	ET-200505	TR 2SC2603 E,F
3-TR24	ET-318239	⚠ TR 2SD863 E,F
3-TR25,26	ET-310833	⚠ TR 2SC2274K E
3-TR28,29	ET-200505	TR 2SC2603 E,F
3-TR30	ET-328437	TR 2SD1012-V F,G
3-TR31	ET-337258	TR 2SC1843 E,F
3-TR32	ET-344275	TR 2SC2320L F,G
3-TR33	ET-328578	TR 2SC2320 E,F
3-TR34	ET-200985	TR 2SC2603 F,G
3-D1 to 4	ED-301911	D SILICON H DS448
3-D6	ED-346286	D ZENER V HZ3C-3S7
3-D8	ED-301911	D SILICON H DS448
3-D9	ED-308952	D GERMA V 1K34A-LR F07
3-D21	ED-350800	D ZENER H 05Z4.7 Y,Z
3-VR1	EV-315414	R S-FIX H D8 3P 203
3-VR2	EV-322413	R S-FIX H D8 3P 302
3-VR3	EV-315416	R S-FIX H D8 3P 103
3-VR4	EV-336785	R S-FIX H TM8KV2-1S 3P 0.50W 104
3-VR5	EV-315413	R S-FIX H D8 3P 503
3-L2	EO-347162	COIL FIX 1 L-8 103J
3-T1	EO-337774	COIL OSC 1 0365-056 100.0kHz
3-FL1	EH-337695	FILTER DB 201AK-005 100kHz
3-FL5	EO-315758	COIL TUN 1 100S-431 100.00kHz
3-FL11	EO-336738	COIL TUN 1 102AK-004 19.80kHz
3-RL1	EQ-337067	RELAY LEAD LAB2NS 2NO 18V
3-R9	ER-345313	R OMF HS15-H 1W 681J
3-FR1,2	ER-307565	R FUSE ERD2FC S10 1/4W 6R8J
3-C13	EC-314992	C STY V F05 CQF09 681J 50DC
3-C45	EC-306022	C STY V F05 CQ09S 821J 50DC
3-C58	EC-307725	C PP V ECQ-P 103J 100DC
3-C59	EC-337777	C PP V F10 ECQ-F 272J 630DC
3-C63	EC-307494	C STY V F05 CQ09S 331J 50DC
3-C65	EC-334068	C STY V F05 CQ09S 271J 50DC
3-C67	EC-314990	C STY V SNP CQFS 101J 50DC
3-J1	EJ-344276	PHONE J 3P HSJ1063-450 3.5

PRE AMP P.C BOARD T2051A504A (2ED) (HA12058)



PRE AMP (2) PCB T2051A504A (2ED)

= NPN TRANSISTOR

= PNP TRANSISTOR

LOCATION OF COMPONENTS

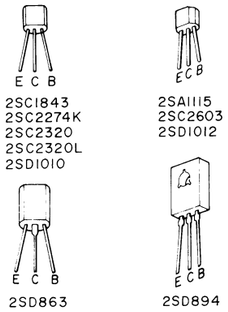
	b – R – CH
IC	
IC I ····· A2	
IC II ····· C5	11b ····· C2,3
TR	
TR 1 ····· A3	1b ····· A3
TR 2 ····· B2	2b ····· B2
TR 3 ····· B3	3b ····· B2
TR 4 ····· B3	4b ····· B2
TR 8 ····· BC2	8b ····· B2
TR 9 ····· D3	
TR 10 ····· E5	10b ····· D5
TR 11 ····· E5	11b ····· D5
TR 12 ····· E4	12b ····· D4
TR 13 ····· E4	13b ····· D4
TR 14 ····· E4	14b ····· D4
TR 15 ····· E5	15b ····· D5
TR 16 ····· E5	16b ····· D5
TR 17 ····· E5	17b ····· D5
TR 18 ····· E4	
TR 19 ····· DE4	
TR 20 ····· D3,4	
TR 22 ····· E1	
TR 23 ····· E1	
TR 24 ····· E1	
TR 25 ····· E2	
TR 26 ····· E2	
TR 28 ····· D1	
TR 29 ····· D1	
TR 30 ····· B5	30b ····· A5
TR 31 ····· B4	31b ····· A4
TR 32 ····· B4	32b ····· A4
TR 33 ····· B4	33b ····· A4
TR 34 ····· B5	

① to ⑥	A1
⑦ to ⑩	B2
⑪ to ⑬	A1

TERMINAL

P1	D1
P2	E3
P3 – 1	B5
P3 – 2	A5

TR 1,32	2SC2320L(F,G)
TR 2	2SC2603(G)
TR 3,34	2SC2603(F,G)
TR 4,22,23 28,29	2SC2603(E,F)
TR 8,10,30	2SD1012(F,G)
TR 9	2SD894
TR11 to 17,33	2SC2320(E,F,G)
TR18 to 20	2SA1115(E,F)
TR24	2SD863(E,F)
TR25, 26	2SC2274K(E)
TR31	2SC1843(E,F)

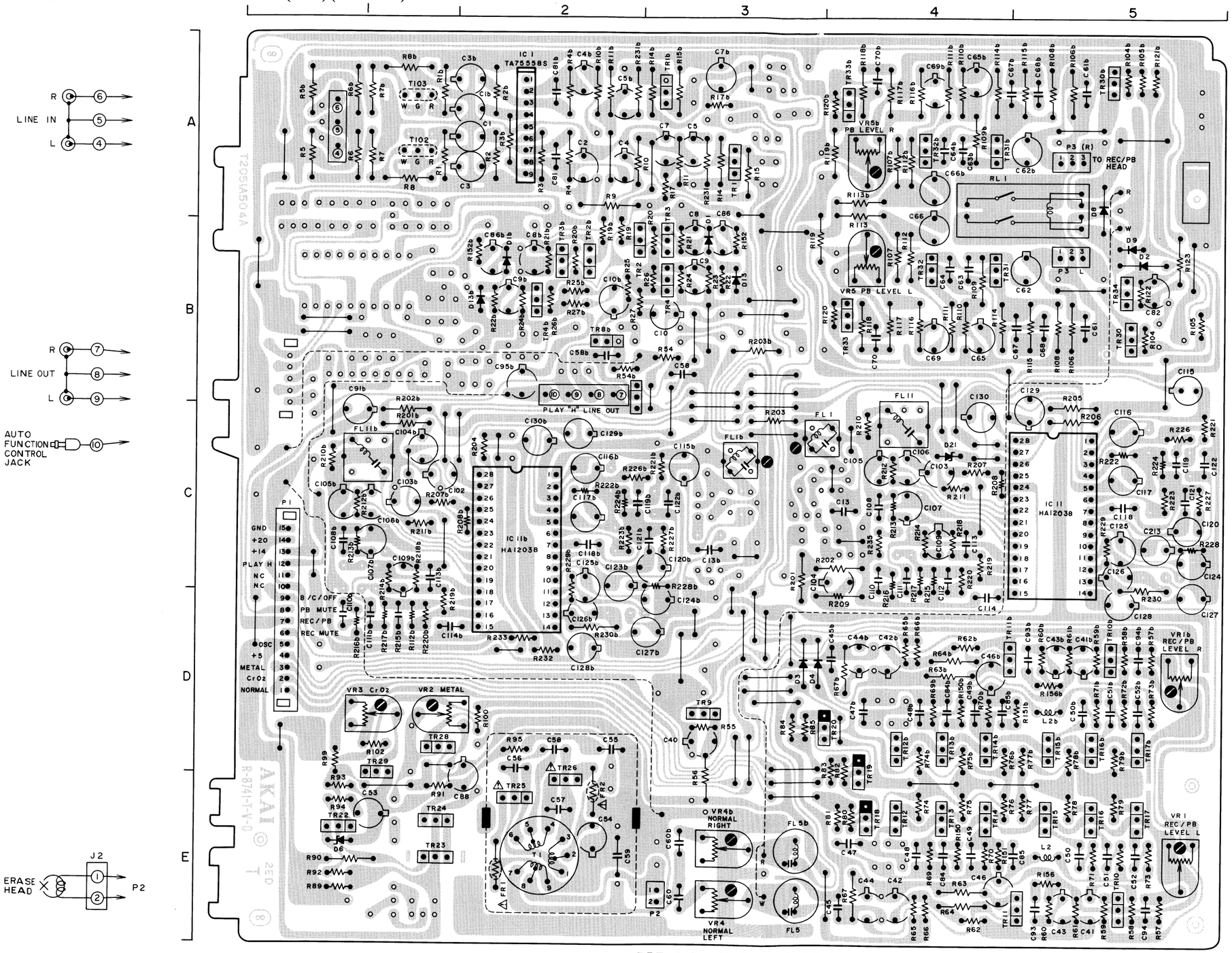


WARNING: ⚠ INDICATES SAFETY CRITICAL COMPONENTS FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS

AVERTISSEMENT: ⚠ IL INDIQUE LES COMPOSANTS CRITIQUES DE SÉCURITÉ. POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL, NE REMPLACER QUE DES PIÈCES RECOMMANDÉES PAR LE FABRICANT

COMPOSITION OF VARIOUS P.C BOARDS

PRE AMP P.C BOARD T2051A504A (2ED) (HA12038)



PRE AMP (2) PCB T2051A504A (2ED)

WARNING: ⚠ INDICATES SAFETY CRITICAL COMPONENTS. FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS

AVERTISSEMENT: ⚠ IL INDIQUE LES COMPOSANTS CRITIQUES DE SÉCURITÉ. POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL, NE REMPLACER QUE DES PIÈCES RECOMMANDÉES PAR LE FABRICANT

B = NPN TRANSISTOR

B = PNP TRANSISTOR

LOCATION OF COMPONENTS

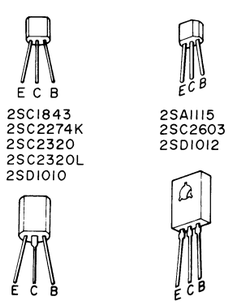
	b – R – CH
IC	
IC I ····· A2	
IC II ····· C5	11b ····· C2,3
TR	
TR 1 ····· A3	1b ····· A3
TR 2 ····· B2	2b ····· B2
TR 3 ····· B3	3b ····· B2
TR 4 ····· B3	4b ····· B2
TR 8 ····· BC2	8b ····· B2
TR 9 ····· D3	
TR 10 ····· E5	10b ····· D5
TR 11 ····· E5	11b ····· D5
TR 12 ····· E4	12b ····· D4
TR 13 ····· E4	13b ····· D4
TR 14 ····· E4	14b ····· D4
TR 15 ····· E5	15b ····· D5
TR 16 ····· E5	16b ····· D5
TR 17 ····· E5	17b ····· D5
TR 18 ····· E4	
TR 19 ····· DE4	
TR 20 ····· D3,4	
TR 22 ····· E1	
TR 23 ····· E1	
TR 24 ····· E1	
TR 25 ····· E2	
TR 26 ····· E2	
TR 28 ····· D1	
TR 29 ····· D1	
TR 30 ····· B5	30b ····· A5
TR 31 ····· B4	31b ····· A4
TR 32 ····· B4	32b ····· A4
TR 33 ····· B4	33b ····· A4
TR 34 ····· B5	

① to ⑥	A1
⑦ to ⑩	B2
⑪ to ⑬	A1

TERMINAL

P1	D1
P2	E3
P3 – 1	B5
P3 – 2	A5

TR 1,32	2SC2320L(F,G)
TR 2	2SC2603(G)
TR 3,34	2SC2603(F,G)
TR 4,22,23 28,29	2SC2603(E,F)
TR 8,10,30	2SD1012(F,G)
TR 9	2SD894
TR11 to 17,33	2SC2320(E,F,G)
TR18 to 20	2SA1115(E,F)
TR24	2SD863(E,F)
TR25,26	2SC2274K(E)
TR31	2SC1843(E,F)



HX-M5

MIC JACK PCB
T2051A501B 1/2

LINE IN

LINE OUT

LEFT

REC/PB HEAD

RIGHT

MIC JACK PCB
T2051A501B 2/2

IC11 HA12038

IC11b HA12038

PRE AMP PCB T2051A504A(2ED)

ERASE HEAD H902 HJ213270

TO BEAT CANCEL

P1

1	NORMAL
2	CrO2
3	METAL
4	+5V
5	OSC
6	REC MUTE
7	REC/PB
8	PB MUTE
9	B/C/OFF
10	NC
11	NC
12	NC
13	+14V
14	+20V
15	GND

INTERMEDIATE JOINT

2SC1843 2SC2274K 2SC2320 2SC2320L 2SD1010

2SA1115 2SC2603

2SD1012

2SD863

2SD894

VOLTAGE AT REC MODE

TR NO.		NORMAL	CrO2	METAL
TR11	B	2.4V	2.4V	2.3V
	C	7.5V	7.4V	7.4V
	E	1.8V	1.7V	1.7V
TR22	B	3.9V	3.9V	3.1V
	C	9.0V	13.3V	20.6V
	E	3.3V	3.3V	3.3V
TR23	B	9.6V	13.2V	20.6V
	B	8.5V	12.0V	20.1V
TR24	C	21.2V	21.1V	20.8V
	E	7.8V	12.7V	19.5V
	B	0.5V	0.4V	0.1V
TR25	C	7.9V	12.0V	19.3V
	E	0.1V	0.2V	0.2V
TR26	C	7.9V	12.0V	19.3V
	E	0.1V	0.2V	0.2V

VOLTAGES AT VARAUS TAPE MODE (REC/PB)

TR NO.		NORMAL	CrO2	METAL
TR12	B	0.6V	0V	0V
TR13	B	0V	0.6V	0V
TR14	B	0V	0V	0.6V
TR15	B	0.6V	0V	0V
TR16	B	0V	0.6V	0V
TR17	B	0V	0V	0.6V
TR18	B	4.5V	5.2V	5.2V
	E	5.2V	0V	0V
TR19	B	5.2V	4.5V	5.2V
	E	0V	5.2V	0V
TR20	B	5.2V	5.2V	4.5V
	C	0V	0V	5.2V
TR28	B	0V	0V	0.6V
TR29	B	0V	0.6V	0V

X VOLTAGE MEASURED AT STOP MODE (METAL TAPE POSITION)

WARNING ⚠ INDICATES SAFETY CRITICAL COMPONENTS. FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS.

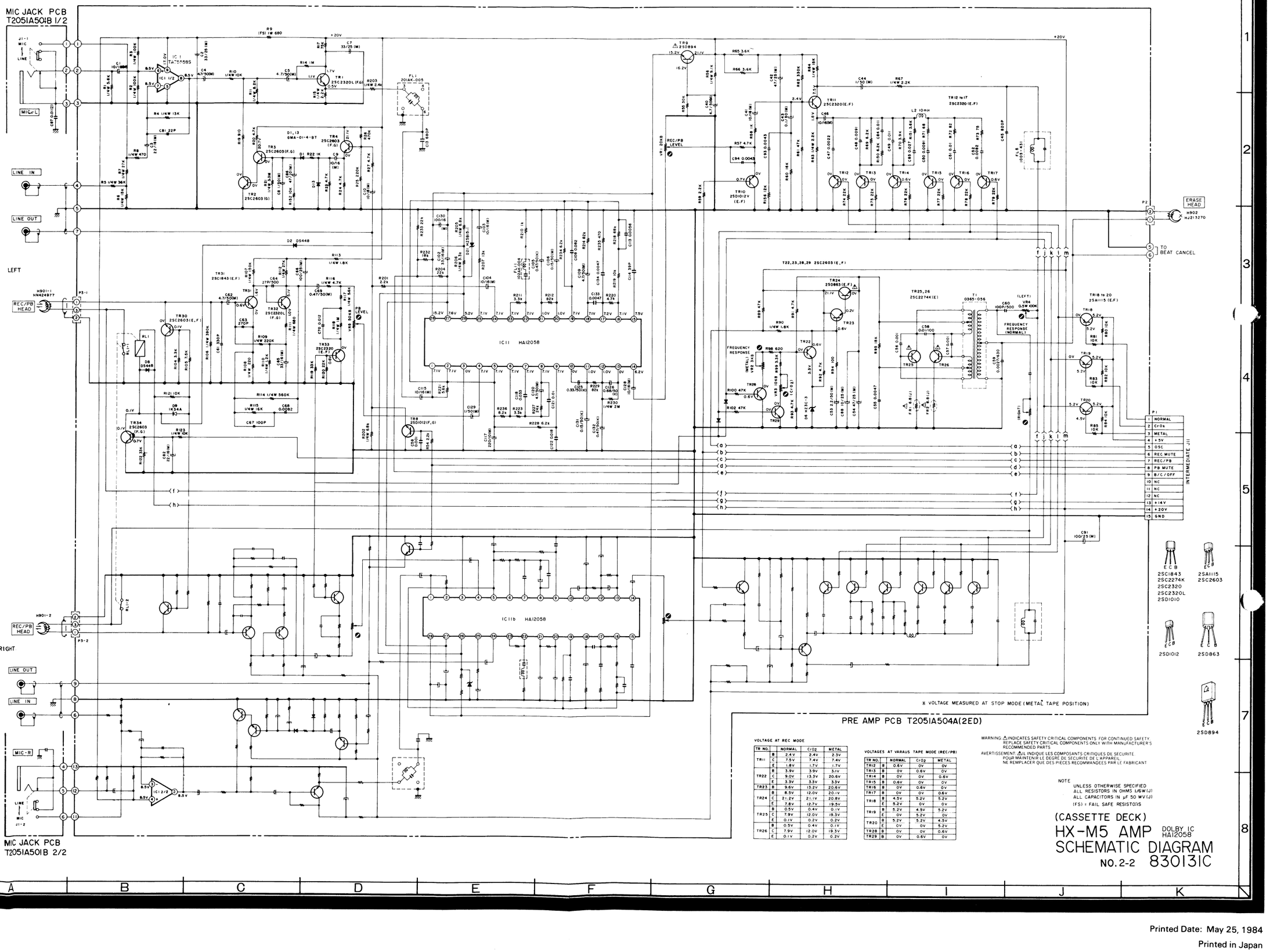
AVERTISSEMENT ⚠ IL INDIQUE LES COMPOSANTS CRITIQUES DE SECURITE. POUR MAINTENIR LE DEGRE DE SECURITE DE L'APPAREIL, NE REMPLACER QUE DES PIECES RECOMMANDEES PAR LE FABRICANT

NOTE
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS 1/6W(J)
ALL CAPACITORS IN μF 50 WV(J)
(FS) : FAIL SAFE RESISTORS

(CASSETTE DECK)
HX-M5 AMP DOLBY IC HA12038
SCHEMATIC DIAGRAM
NO.2-2 830131C

001336

HX-M5



※ VOLTAGE MEASURED AT STOP MODE (METAL TAPE POSITION)

VOLTAGE AT REC MODE

TR NO.		NORMAL	CrO2	METAL
TR11	B	2.4V	2.4V	2.3V
	C	7.5V	7.4V	7.4V
	E	1.8V	1.7V	1.7V
TR22	B	3.9V	3.9V	3.1V
	C	9.0V	13.3V	20.6V
	E	3.3V	3.3V	3.3V
TR23	B	9.6V	13.2V	20.6V
	B	8.5V	12.0V	20.1V
TR24	C	21.2V	21.1V	20.8V
	E	7.8V	12.7V	19.5V
	B	0.5V	0.4V	0.1V
TR25	C	7.9V	12.0V	19.3V
	E	0.1V	0.2V	0.2V
	B	0.5V	0.4V	0.1V
TR26	C	7.9V	12.0V	19.3V
	E	0.1V	0.2V	0.2V

VOLTAGES AT VARAUS TAPE MODE (REC/PB)

TR NO.		NORMAL	CrO2	METAL
TR12	B	0.6V	0V	0V
TR13	B	0V	0.6V	0V
TR14	B	0V	0V	0.6V
TR15	B	0.6V	0V	0V
TR16	B	0V	0.6V	0V
TR17	B	0V	0V	0.6V
TR18	B	4.5V	5.2V	5.2V
	E	5.2V	0V	0V
TR19	B	5.2V	4.5V	5.2V
	E	0V	5.2V	0V
TR20	B	5.2V	5.2V	4.5V
	E	0V	0V	5.2V
TR28	B	0V	0V	0.6V
TR29	B	0V	0.6V	0V

WARNING: ⚠ INDICATES SAFETY CRITICAL COMPONENTS. FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS.
AVERTISSEMENT: ⚠ IL INDIQUE LES COMPOSANTS CRITIQUES DE SECURITE. POUR MAINTENIR LE DEGRE DE SECURITE DE L'APPAREIL, NE REMPLACER QUE DES PIECES RECOMMANDEES PAR LE FABRICANT.

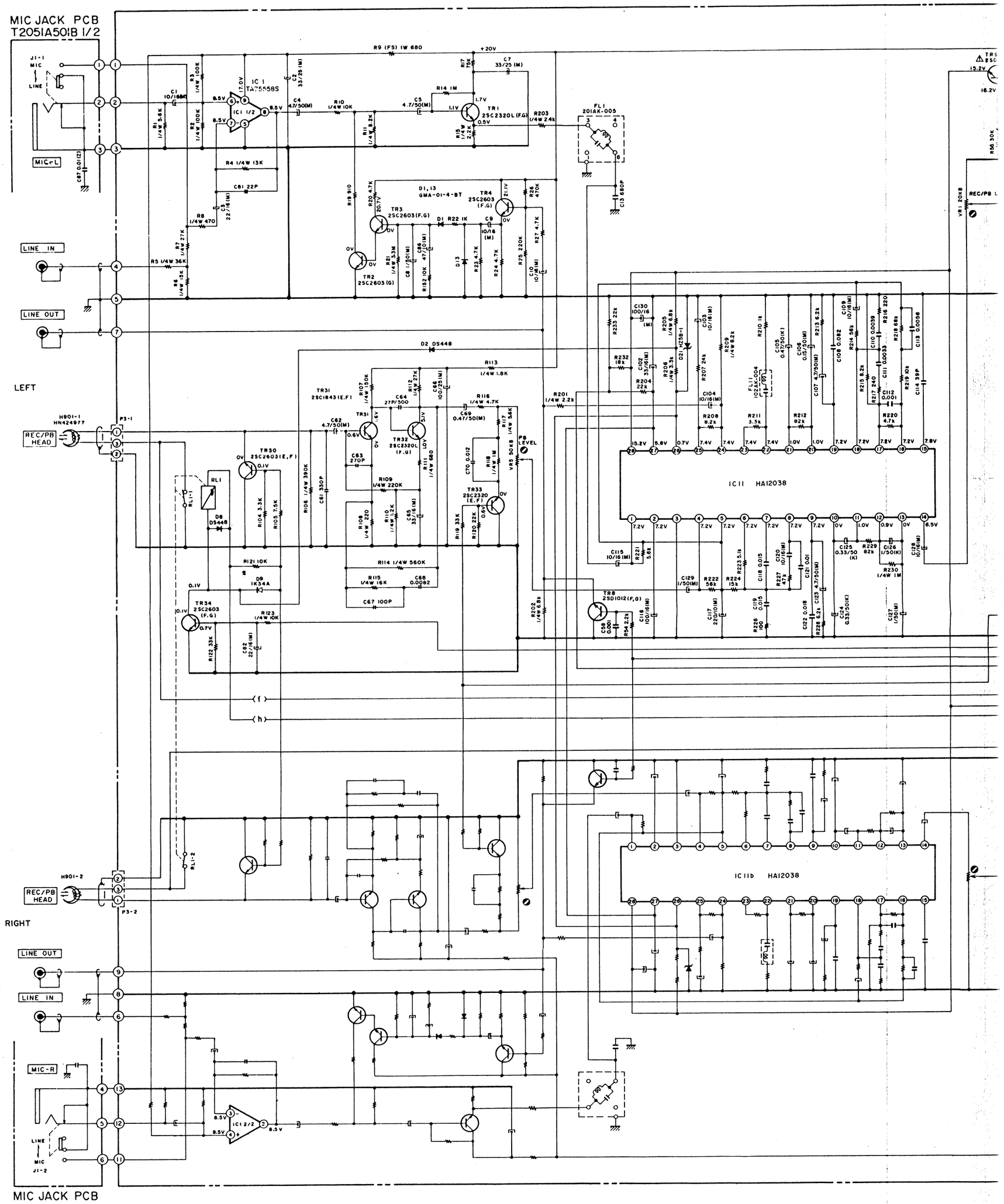
NOTE
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS 1/4W (J)
ALL CAPACITORS IN μF 50 WV (J)
(FS) = FAIL SAFE RESISTORS

(CASSETTE DECK)
HX-M5 AMP SCHEMATIC DIAGRAM
DOLBY IC HA12058
NO. 2-2 830131C

Printed Date: May 25, 1984
Printed in Japan

HX-M5

MIC JACK PCB
T2051A501B 1/2



MIC JACK PCB
T2051A501B 2/2

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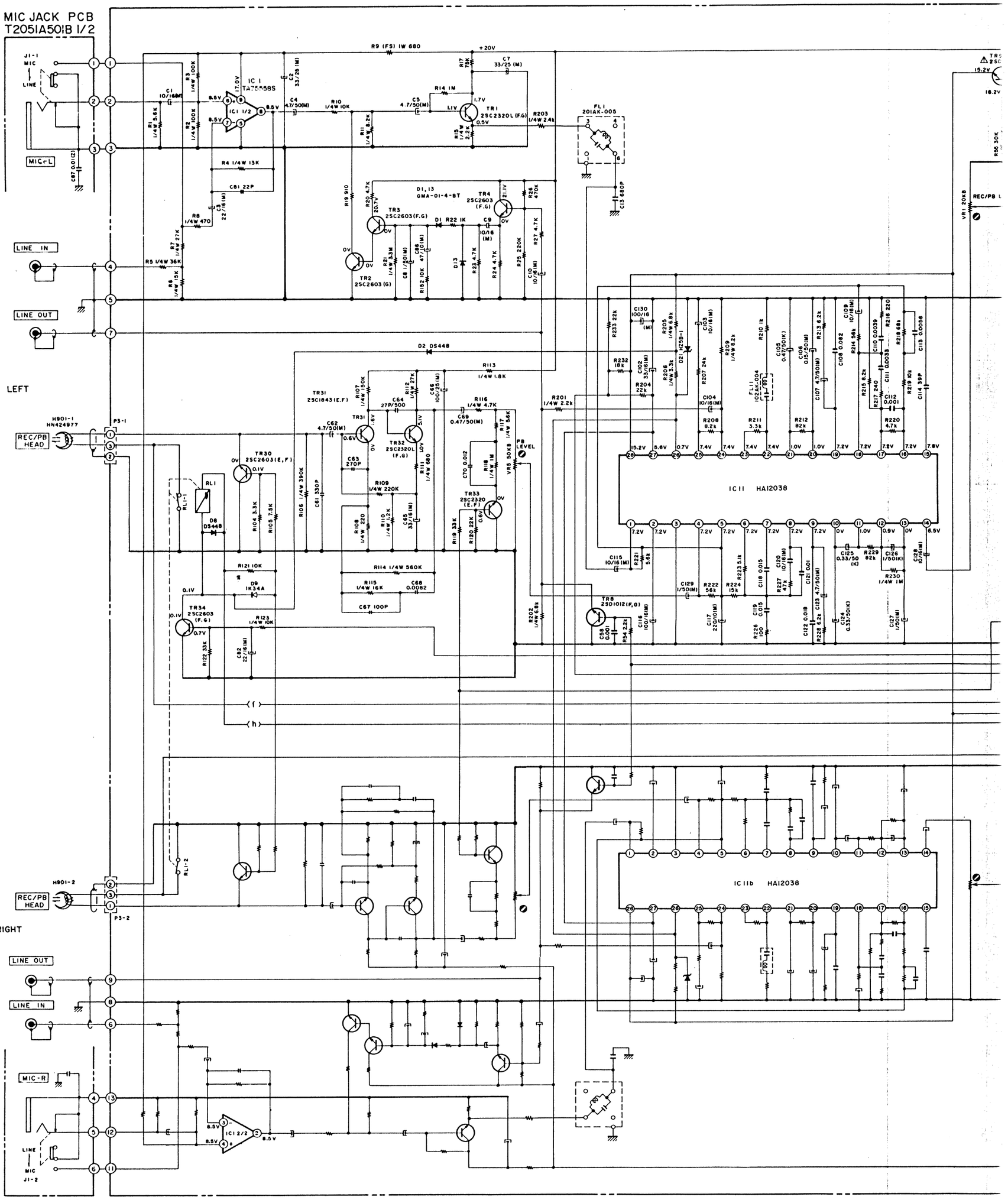
HX-M5

MIC JACK PCB
T2051A501B 1/2



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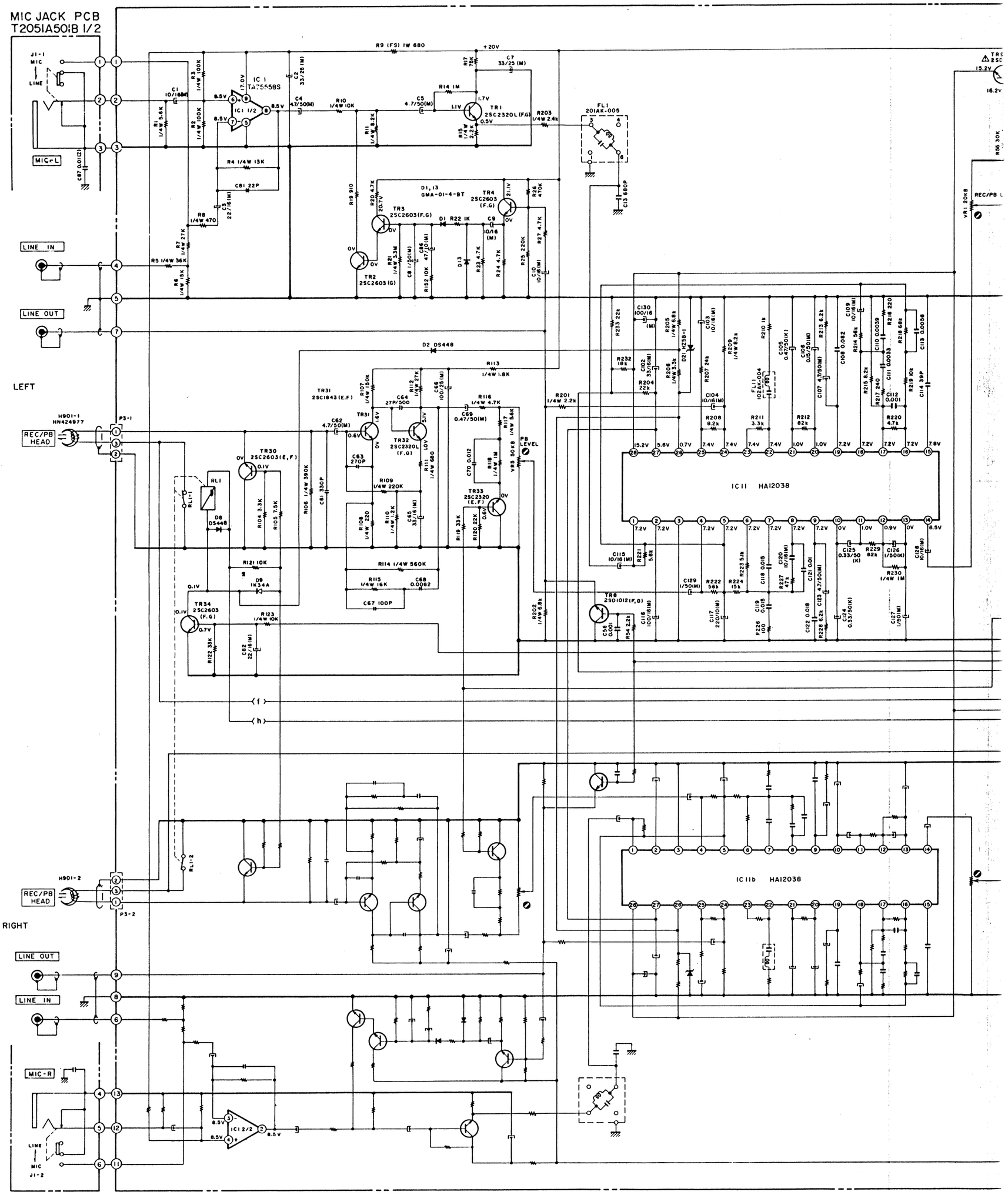
HX-M5

MIC JACK PCB
T2051A501B 1/2



MIC JACK PCB
T2051A501B 2/2

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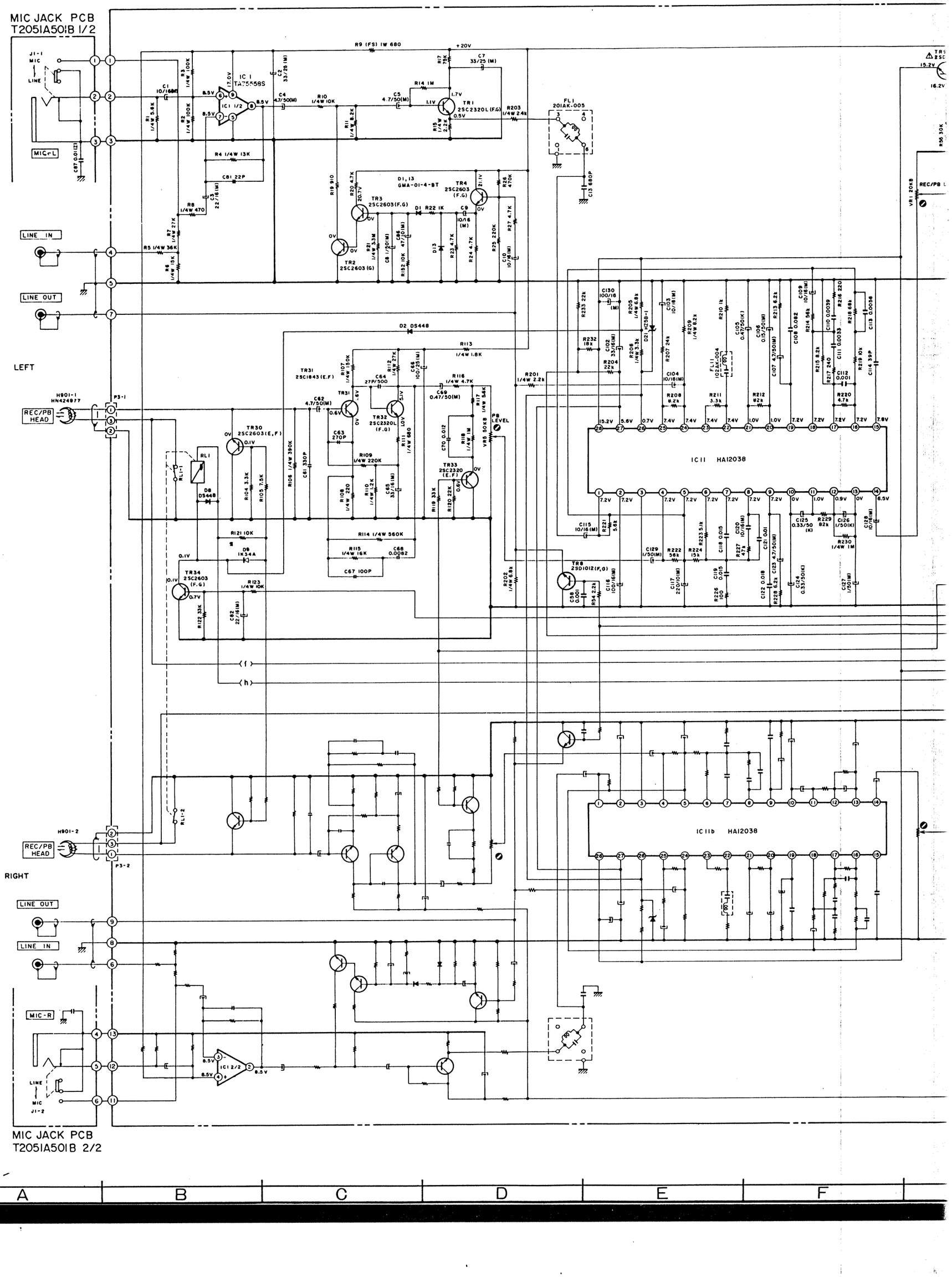
MIC JACK PCB
T2051A501B 1/2



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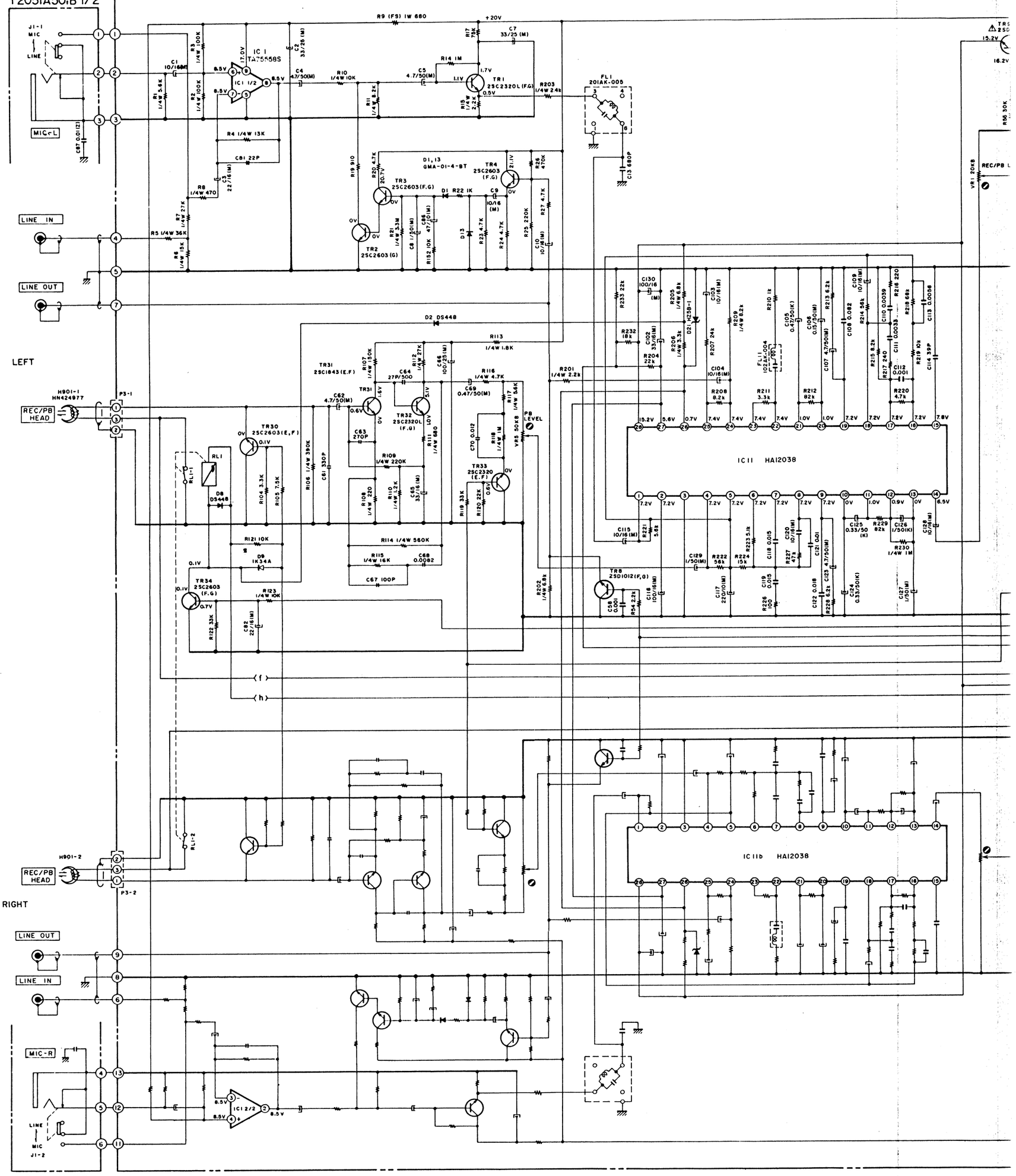
HX-M5

MIC JACK PCB
T2051A501B 1/2



MIC JACK PCB
T2051A501B 2/2

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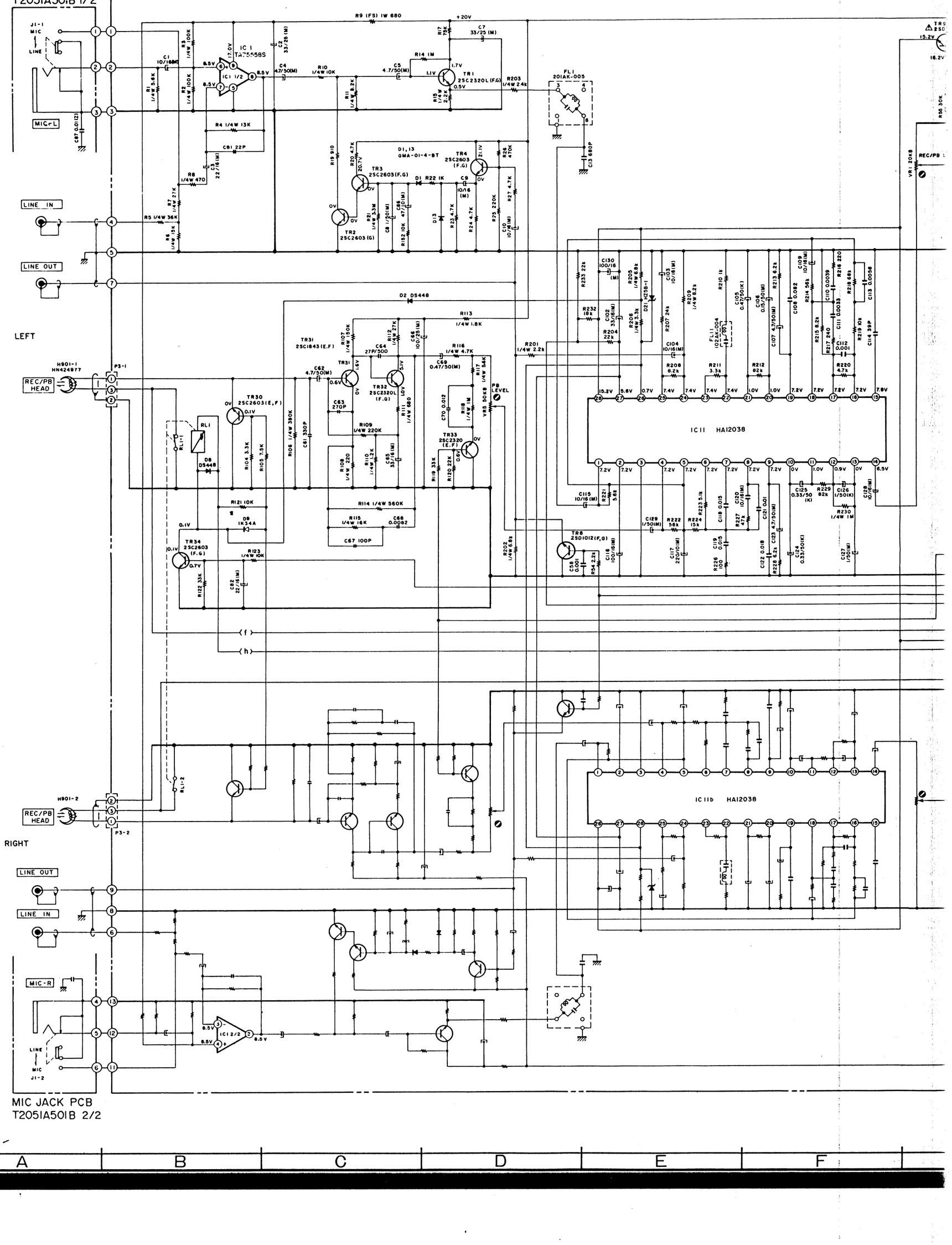
MIC JACK PCB
T2051A501B 1/2



MIC JACK PCB
T2051A501B 2/2

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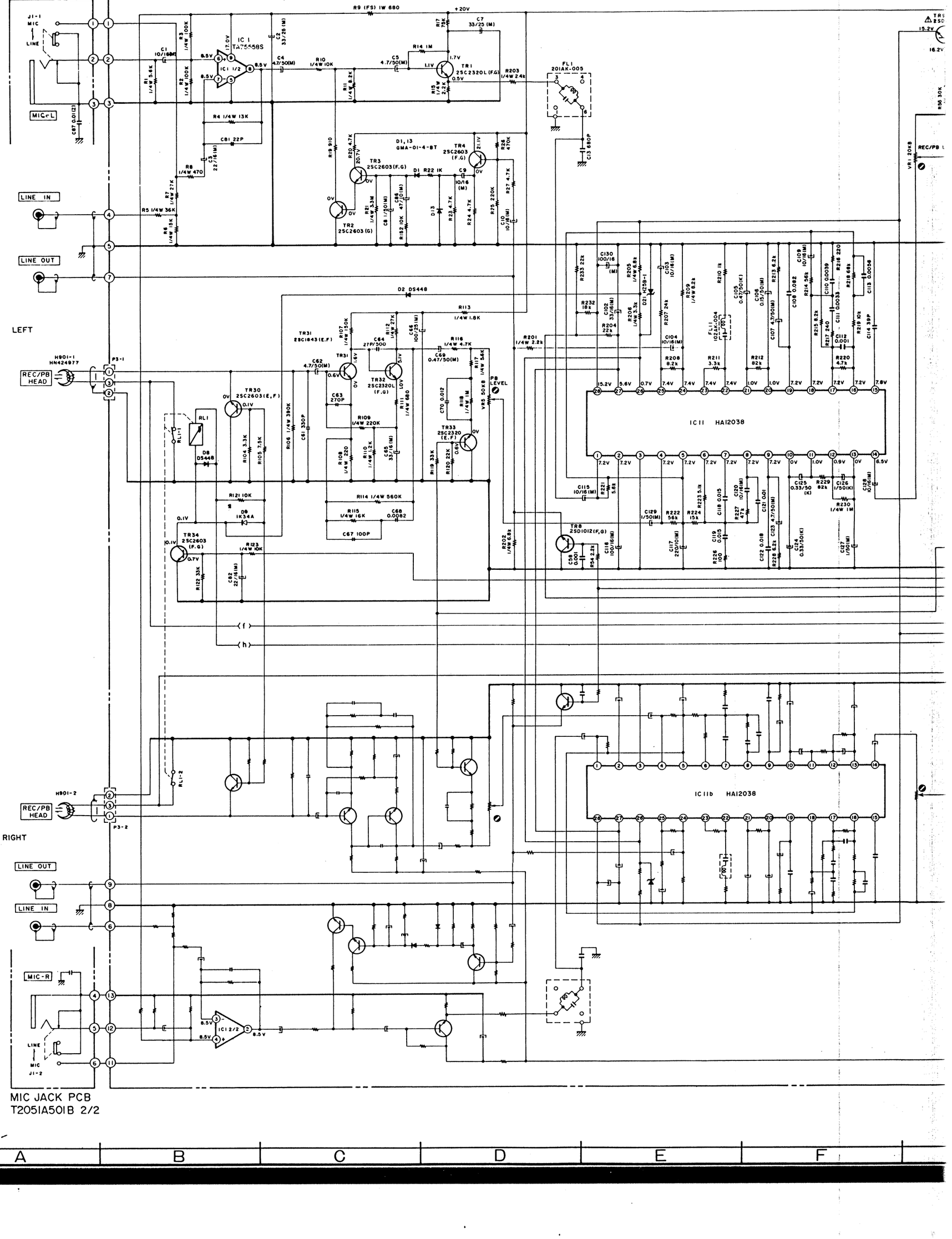
HX-M5

MIC JACK PCB
T2051A501B 1/2

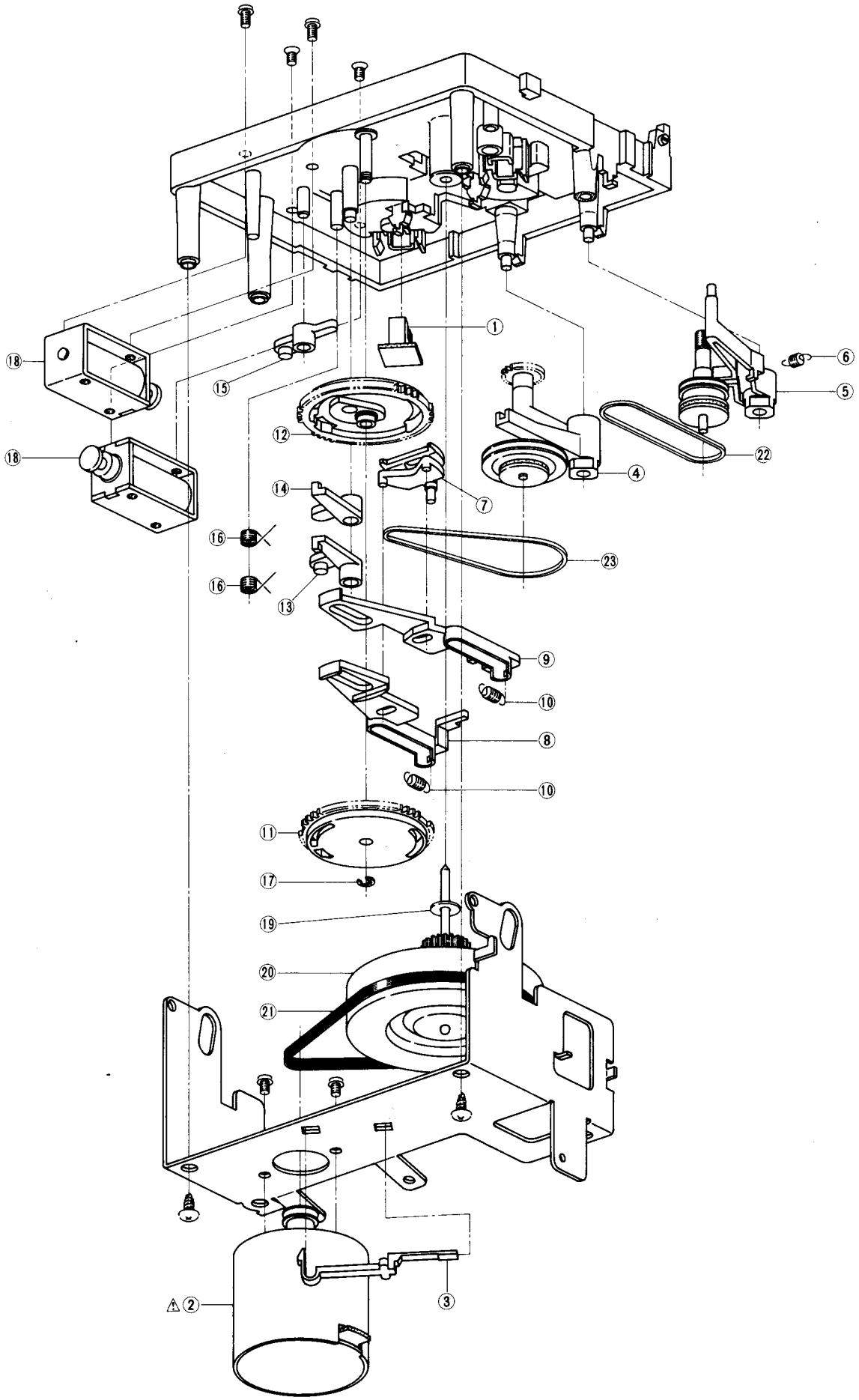


001336

1. MECHA CMS01 BLOCK (1/2)

REF. NO.	PARTS NO.	DESCRIPTION
1A.	**HEAD BLOCK**	
1-1	BH-T2051A030A	HEAD BLK HX-M5
1-2	ZG-343104	SP PUSH EH
1-3	ZG-344900	SP PUSH PB (B)
1-4	ZS-417328	BID23×10STL CMT
1-5	ZS-565211	BID20×10STL NI3
1-6	HP-344252	HEAD R/P HN424977 (H901)
1-7	HE-337047	HEAD E HJ213270 C (H902)
1B.	**PINCH ROLLER (A) BLOCK**	
1-8	BL-T2051A040A	PINCH ROLLER (A) BLK HX-M5
1-9	MP-336153	PINCH ROLLER (A)
1C.	**HOLDER DETECTION BLOCK**	
1-10	ES-344253	SW LEAF MSW-1418J 01-1 NO (SW901,902)
1-11	ES-344257	SW LEAF MSW-1418L 01-1 NO (SW903)
1-12	ZG-312995	SP T1-4.0/0.4-11.2 T1-108
1D.	**MECHA CMS01 BLOCK**	
1-13x	BZ-T2051A020A	MECHA CMS01 BLK HX-M5
1-14	MT-344187	REEL TABLE
1-15	ZG-344188	SP PUSH REEL TABLE
1-16	MT-344190	REEL RETAINER
1-17	MT-305793	REEL CAP
1-18	ZW-305546	PW21×040×025PSL
1-19	ML-344191	LEVER BRAKE (L)
1-20	ML-344192	LEVER BRAKE (R)
1-21	ZG-344194	SP TORSION BRAKE
1-22	MZ-344906	GEAR FF(B)
1-23	ZW-343120	PW17×040×025PSL
1-24	ML-344196	LEVER (A)
1-25	ZG-344200	SP PULL HEAD SHASSIS
1-26	ML-344197	LEVER (B)
1-27	TC-344198	LEVER EJECT STOPPER
1-28	ZG-344199	SP TORSION EJECT LOCK
1-29	MV-357208	BALL200STL
1-30	BD-B344206	LID DECORATION PART
1-31	ED-344244	D LED SLF-601C UMBER
1-32	TC-344236	LEVER EJECT
1-33	ZG-312925	SP T1-3.2/0.2-14.0 T1-042
1-34	MZ-344297	DUMPER ASSY
1-35	SE-344239	LID HOLDER
1-36	ZG-336615	SP PLATE CASSETTE HOLDER (B)
1-37	ZG-344240	SP TORSION LID HOLDER
1-38	MZ-B344179	MECHA CHASSIS PART

MECHA CMS01 BLOCK (2/2)



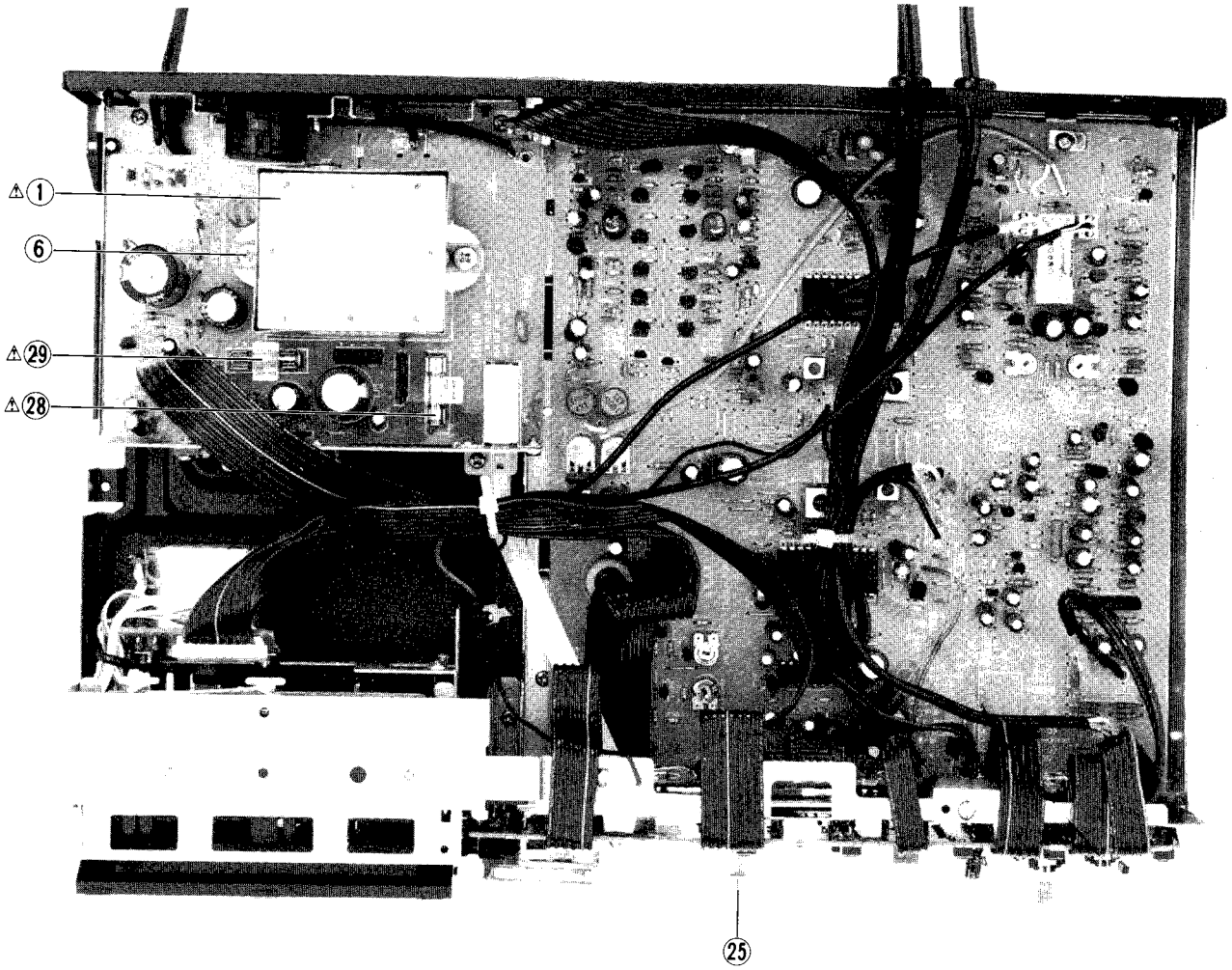
2. MECHA CMS01 BLOCK (2/2)

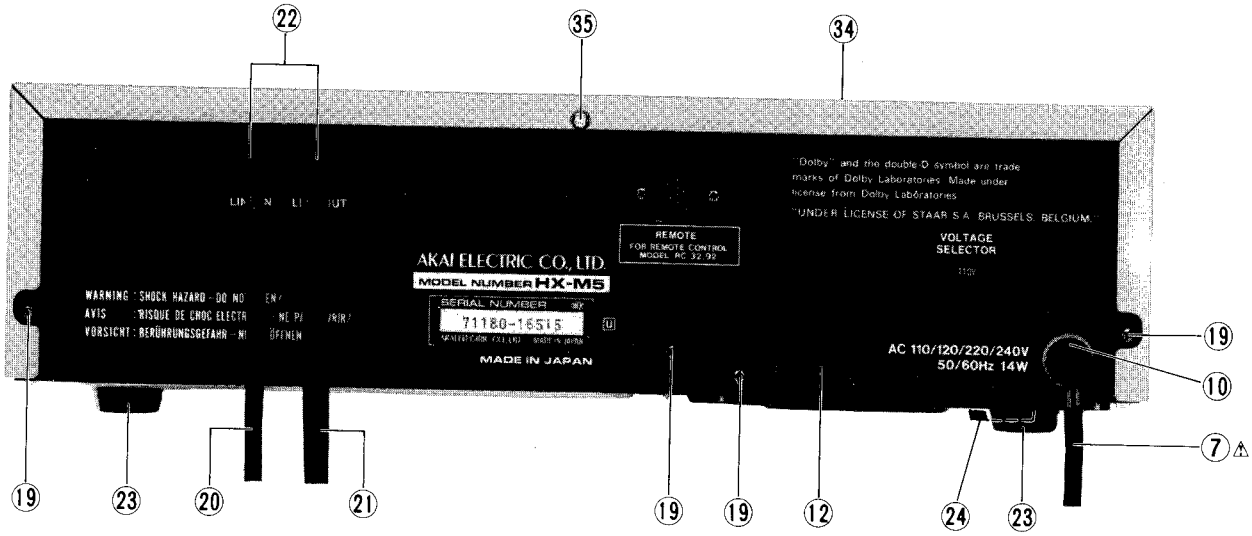
REF. NO.	PARTS NO.	DESCRIPTION
2A.	**DETECTOR P.C BOARD**	
2-1	ET-311977	PHOTO SENSOR SPI-201 (PH1)
2B.	**HOLDER MOTOR BLOCK**	
2-2	BM-B314815	⚠ MOTOR (PULLEY) PART (M901)
2-3	TC-344901	HOLDER THRUST
2C.	**MECHA CMS01 BLOCK**	
2-4	MI-B344207	ARM IDLER FR PART
2-5	MI-B344215	ARM IDLER TU PART
2-6	ZG-343152	SP PULL TU IDLER
2-7	TC-344219	CAM SHIFTER
2-8	SK-344220	SLIDE (F)
2-9	TC-344221	SLIDE (R)
2-10	SP-343153	SP PULL SLIDE
2-11	TP-344222	CAM (F)
2-12	TP-344223	CAM (R)
2-13	TC-344224	ARM LOCK (F)
2-14	TC-344225	ARM LOCK (R)
2-15	TC-344226	ARM JOINT
2-16	ZG-344227	SP TORTION PLUNGER
2-17	ZW-340648	RING CS190STL PKR
2-18	EP-344251	SOLENOID 0730PLT 12V (SL901,902)
2-19	ZW-345389	PW26x080x020NYL
2-20	MI-B344228	FLYWHEEL PART
2-21	MB-344230	BELT 3.0x0.5TxD61CRHS60
2-22	MB-344231	BELT 1.0xD33.3 CR HS60
2-23	MB-344905	BELT 1.2xD38.2 CR HS60

3. PRE-AMP P.C BOARD BLOCK

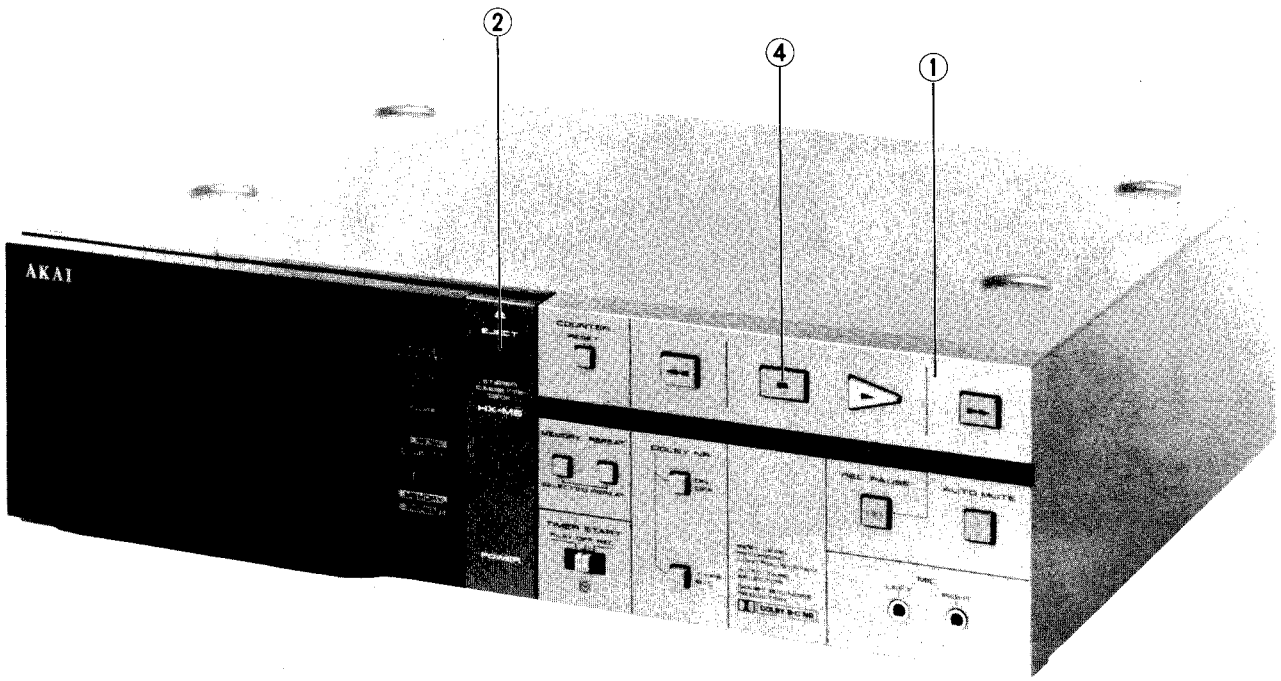
REF. NO.	PARTS NO.	DESCRIPTION
3-1	BA-T2051A090A	PC PRE-AMP BLK HX-M5
	PRE-AMP P.C BOARD	
3-IC1	EI-200938	IC TA75558S
3-IC2	EI-344291	IC NE654
3-IC3	EI-337835	IC NE652
3-TR1	ET-344275	TR 2SC2320L F,G
3-TR2	ET-308141	TR 2SC2603 G
3-TR3	ET-200985	TR 2SC2603 F,G
3-TR4	ET-200505	TR 2SC2603 E,F
3-TR5	ET-328578	TR 2SC2320 E,F
3-TR8	ET-332421	TR 2SD1010 R,S
3-TR9	ET-201580	⚠ TR 2SD894
3-TR10	ET-328437	TR 2SD1012-V F,G
3-TR11 to 17	ET-328578	TR 2SC2320 E,F
3-TR18 to 20	ET-200558	TR 2SA1115 E,F
3-TR22,23	ET-200505	TR 2SC2603 E,F
3-TR24	ET-318239	⚠ TR 2SD863 E,F
3-TR25,26	ET-310833	⚠ TR 2SC2274 K,E
3-TR28,29	ET-200505	TR 2SC2603 E,F
3-TR30	ET-328437	TR 2SD1012-V F,G
3-TR31	ET-337258	TR 2SC1843 E,F
3-TR32	ET-344275	TR 2SC2320L F,G
3-TR33	ET-328578	TR 2SC2320 E,F
3-TR34	ET-200985	TR 2SC2603 F,G
3-D1 to 4	ED-301911	D SILICON H DS448
3-D6	ED-346286	D ZENER V HZ3C-3S1
3-D8	ED-301911	D SILICON H DS448
3-D9	ED-308952	D GERMA V 1K34A-LR F07
3-VR1	EV-315414	R S-FIX H D8 3P 203
3-VR2	EV-322413	R S-FIX H D8 3P 302
3-VR3	EV-315416	R S-FIX H D8 3P 103
3-VR4	EV-336785	R S-FIX H TM8KV2-1S 3P 0.50W 104
3-VR5	EV-315413	R S-FIX H D8 3P 503
3-L2	EO-347162	COIL FIX1 L-8 10.00MHJ
3-T1	EO-337774	COIL OSC1 0365-056 100.0 kHz
3-FL1	EH-337695	FILTER DB 201AK-005 100 kHz
3-FL3	EO-336738	COIL TUN 1 102AK-004 19.8 kHz
3-FL5	EO-315758	COIL TUN 1 100S-431100 kHz
3-RL1	EP-337067	RELAY LEAD LAB2NS 2NO 18V
3-R9	ER-345313	R OMF HS15-H 1W 681J
3-FR1,2	ER-307565	R FUSE ERD2FC S10 1/4W 6R8J
3-C13	EC-314992	C STY V F05 CQF09 681 J 50DC
3-C45	EC-306022	C STY V F05 CQ09S 821 J 50DC
3-C58	EC-307725	C PP V ECQ-P 103J 100DC
3-C59	EC-337777	C PP V F10 ECQ-F 272J 630DC
3-C63	EC-307494	C STY V F05 CQ09S 331 J 50DC
3-C65	EC-334068	C STY V F05 CQ09S 271 J 50DC
3-C67	EC-314990	C STY V SNP CQFS 101J 50DC
3-J1	EJ-344276	PHONE J 3P HSJ1063-450 3.5

ASSEMBLY BLOCK





FINAL ASSEMBY BLOCK



7. FINAL ASSEMBLY BLOCK

REF. NO.	PARTS NO.	DESCRIPTION
	PANEL FRONT BLOCK	
7-1	BD-T2051A130B	PANEL FRONT BLK HX-M5 (A)
7-2	SK-343096	KNOB POWER HX-M5
7-3x	ZG-313182	SP C-4.5/0.35-25.0 C-029
7-4	SK-343097B	RUBBER BUTTON SHEET OPERATION
7-5x	SZ-344753	WINDOW FLD FILTER

INDEX

PARTS NO.	REF. NO.	PARTS NO.	REF. NO.	PARTS NO.	REF. NO.	PARTS NO.	REF. NO.
BA-T2051A090A	3-1	ES-344274	5-SW2	SZ-344264	6-10		
BA-T2051A120A	4-1	ES-344281	4-SW12	SZ-344264	6-22		
BC-343094	6-34	ET-200505	3-TR4	SZ-344753	7-5x		
BD-B343092	6-26x	ET-200505	3-TR22,23	TC-344198	1-27		
BD-B344206	1-30	ET-200505	3-TR28,29	TC-344219	2-7		
BD-T2051A130B	7-1	ET-200505	5-TR1	TC-344221	2-9		
BH-T2051A030A	1-1	ET-200505	5-TR3	TC-344224	2-13		
BL-T2051A040A	1-8	ET-200558	3-TR18 to 20	TC-344225	2-14		
BM-B314815	2-2	ET-200558	4-TR6	TC-344226	2-15		
BT-345753	6-4x	ET-200558	4-TR2,3	TC-344236	1-32		
BT-345754	6-5x	ET-200558	5-TR4	TC-344901	2-3		
BT-345761	6-1	ET-200985	3-TR3	TP-344222	2-11		
BT-345762	6-2x	ET-200985	3-TR34	TP-344223	2-12		
BT-345763	6-3x	ET-201580	3-TR9	ZG-312925	1-33		
BZ-T2051A020A	1-13x	ET-308141	3-TR2	ZG-312995	1-12		
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EC-307494	3-C63	ET-311977	2-1	ZG-336615	1-36		
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ED-301911	3-D1 to 4	ET-336941	5-TR2	ZG-312116	6-6		
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ED-301911	4-D7,8	ET-344275	3-TR32	ZS-565211	1-5		
ED-301911	4-D2 to 6	ET-517263	4-TR5	ZW-305013	6-27x		
ED-301911	5-D6	EV-315413	3-VR5	ZW-305546	1-18		
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ED-328791	4-D27	EW-207742	6-9x				
ED-330319	5-D1,2	EW-302995	6-37x				
ED-337093	4-D26	EW-322401	6-38x				
ED337259	5-D5	EW-345766	6-20				
ED-338316	5-D3	EW-345768	6-21				
ED-343958	5-D7	EW-347673	6-36x				
ED-344244	1-31	EW-374894	6-7				
ED-346286	3-D6	EW-524845	6-8x				
EF-305703	6-31x	HE-337047	1-7				
EF-306124	6-29	HP-344252	1-6				
EF-309387	6-28	MB-344230	2-21				
EF-310229	6-30x	MB-344231	2-22				
EF-601942	6-33x	MB-344905	2-23				
EF-623103	6-32x	MI-B344207	2-4				
EH-337695	3-FL1	MI-B344215	2-5				
EI-200938	3-IC1	MI-B344228	2-20				
EI-300042	4-IC6	ML-344191	1-19				
EI-336995	5-IC1	ML-344192	1-20				
EI-337009	4-IC1	ML-344196	1-24				
EI-337009	4-IC5	ML-344197	1-26				
EI-337013	4-IC2,3	MP-336153	1-9				
EI-337835	3-IC3	MT-305793	1-17				
EI-344277	4-IC4	MT-344187	1-14				
EI-344291	3-IC2	MT-344190	1-16				
EJ-310567	6-11x	MV-357208	1-29				
EJ-344276	3-J1	MZ-B344179	1-38				
EJ-344282	4-J1	MZ-344297	1-34				
EM-344279	4-IN1	MZ-344906	1-22				
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EO-336738	3-FL3	SA-336217B	6-24				
EO-337774	3-T1	SE-344239	1-35				
EO-347162	3-L2	SK-343090	6-25				
EP-337067	3-RL1	SK-343096	7-2				
EP-344251	2-18	SK-343097B	7-4				
ER-307565	3-FR1,2	SK-344220	2-8				
ER-343959	5-R3	SP-343089A	6-12				
ER-345313	3-R9	SP-343089B	6-13x				
ER-347164	4-SR1,2	SP-343089C	6-14x				
ES-336780	4-SW1 to 9	SP-343089D	6-15x				
ES-337843	4-SW10,11	SP-343089E	6-16x				
ES-337902	5-SW1	SP-343089F	6-17x				
ES-344253	1-10	SP-343089G	6-18x				
ES-344257	1-11	SP-343153	2-10				

SECTION 3

SCHEMATIC DIAGRAM

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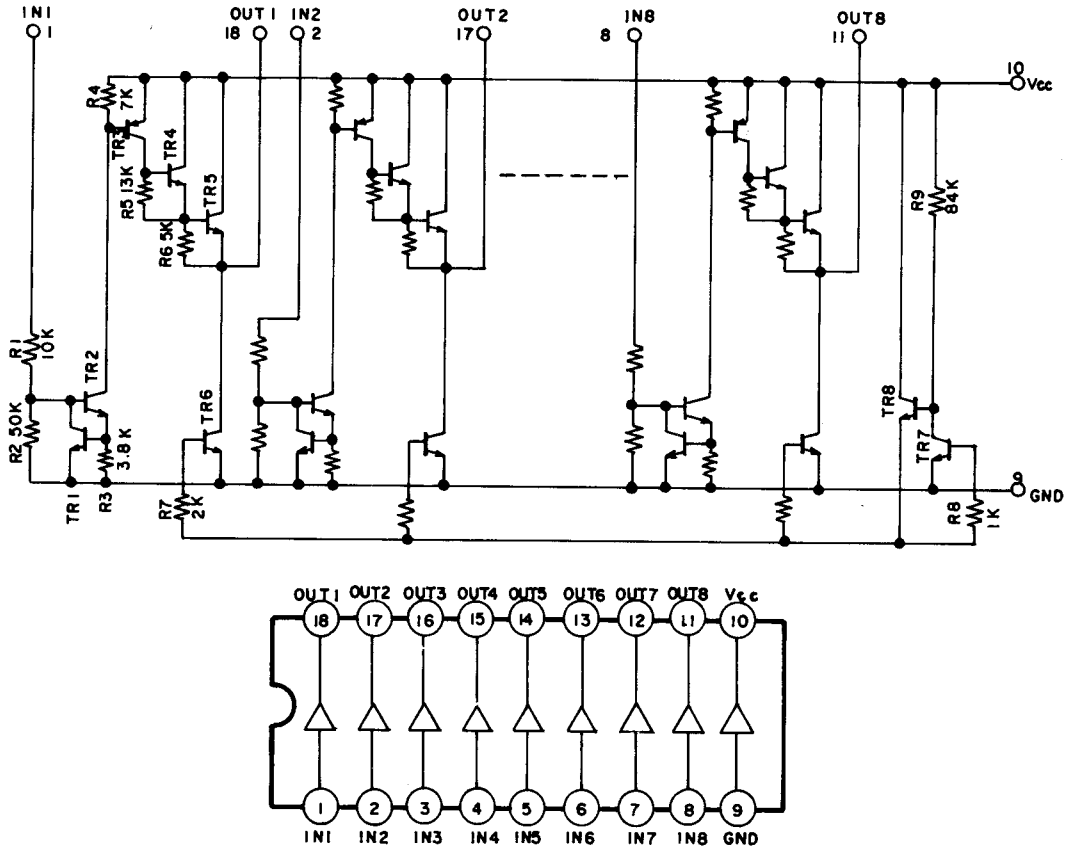
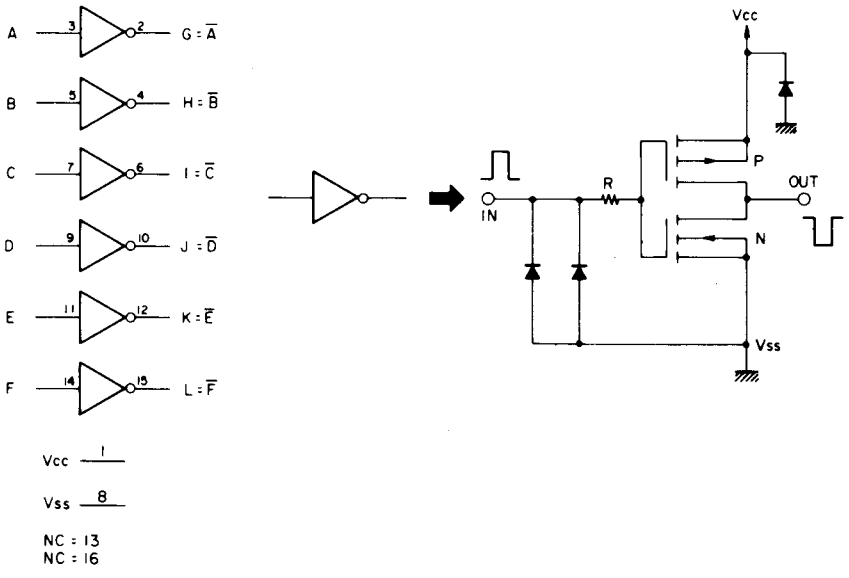
3. HX-M5 AMP No. 830131A SCHEMATIC DIAGRAM 50

LB1290



LC4049



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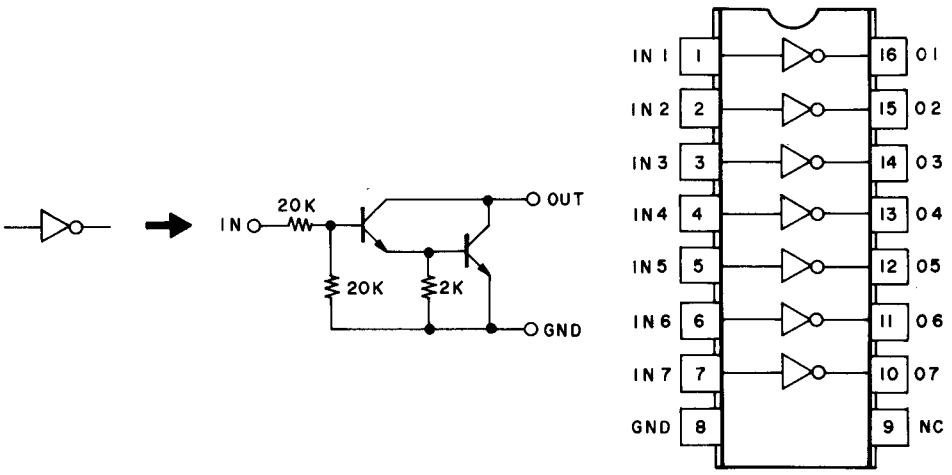

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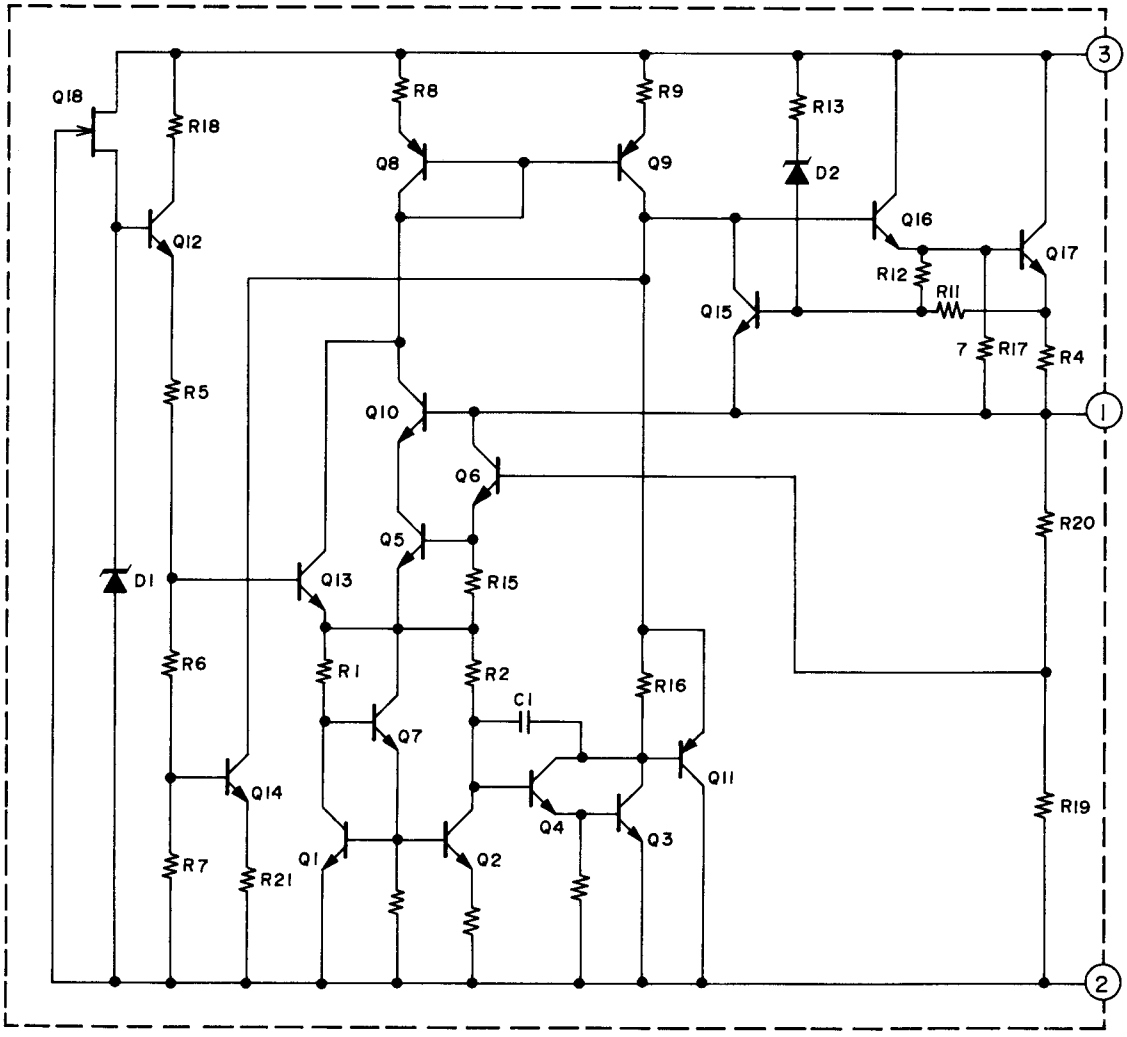
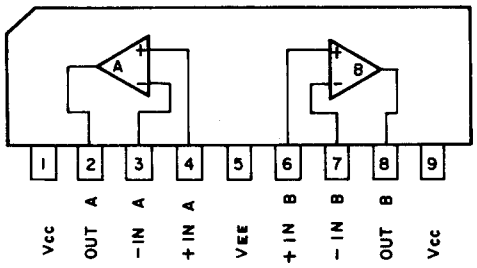


TA75558S



HX-M5

SYSTEM CONTROL PCB T2051A502A

POWER PCB T2051B5030

POWER PCB T2051B5030

POWER PCB T2051B5030

POWER PCB T2051B5030

POWER PCB T2051B5030

DETECTOR PCB CMS01D5010

CONNECTOR PCB CMS01D5020

INTERMEDIATE PCB T2051A502B

REMOTE CONTROL PCB T2051A502C

= B(POWER SUPPLY) LINE

* VOLTAGE INDICATE AT PLAY MODE
* Ⓟ MARK IS PULSE SIGNAL

NOTE
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS (1/4W,J)
ALL CAPACITORS IN μF 50 WV(J)
(FS) = FAIL SAFE RESISTORS

WARNING: ⚠ INDICATES SAFETY CRITICAL COMPONENTS FOR CONTINUED SAFETY. REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS

AVERTISSEMENT: ⚠ IL INDIQUE LES COMPOSANTS CRITIQUES DE SÉCURITÉ. POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL, NE REMPLACER QUE DES PIÈCES RECOMMANDÉES PAR LE FABRICANT

(CASSETTE DECK)
HX-M5
POWER SUPPLY & SYSCON
SCHEMATIC DIAGRAM
NO.2-1 830130A

001335

HX-M5

MIC JACK PCB
T2051A501B 1/2

MIC/LINE AMP

INTER AMP

DOLBY B/C

REC AMP

REC/PB SWITCHING

PB AMP

ALC

BIAS OSC CONTROL

BIAS OSC

MIC JACK PCB
T2051A501B 2/2

PRE AMP PCB T2051A501A

WARNING: ⚠ INDICATES SAFETY CRITICAL COMPONENTS. FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS

AVERTISSEMENT: ⚠ IL INDIQUE LES COMPOSANTS CRITIQUES DE SÉCURITÉ. POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL, NE REMPLACER QUE DES PIÈCES RECOMMANDÉES PAR LE FABRICANT

2SC1843
2SC2274K
2SC2320
2SC2320L
2SD1010

2SA1115
2SC2603
2SD1012

2SD863

2SD894

NOTE:
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS (1/4W Ω)
ALL CAPACITORS IN µF 50 WV (Ω)
(FS) : FAIL SAFE RESISTORS

X VOLTAGE INDICATE AT PLAY MODE (NORMAL TAPE POSITION)

B (POWER SUPPLY) LINE

(CASSETTE DECK)
HX-M5 AMP
SCHEMATIC DIAGRAM
NO.2-2 830131A

001336